FDI LOCATION DETERMINANTS
in Central and Eastern European Countries

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To my "mountains"

Biographical note

Diana Matei was born in Bucharest, Romania in 1980.

In 2003, she graduated the Academy of Economic Studies in Bucharest with a Major in Management. In the last semester of the undergraduate course, she joined the co-operation and mobility programme Erasmus Mundus obtaining a scholarship at the Faculty of Economics of Porto (FEP), University of Porto, Portugal.

After graduating, she enrolled in the Masters of Economics, Specialisation in International Economics, at FEP. During this period, she joined Aerosoles – Investvar Group, the largest Portuguese footwear group, presently being in charge with the international operations of the firm on the Indian and, to a less extent, Romanian markets.

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Abstract

Foreign Direct Investment (FDI) has become increasingly important in financing growth and investment in host countries. FDI is deemed desirable for several reasons, among which the fact that it is usually a vehicle for economic development (e.g. via positive impacts on the balance of payments, promoting exports, creating employment and transferring a vast array of resources – financial, technological, organisational competence), a partial substitute for foreign aid and a promoter of economic stability. Giving its raising importance and implications, countries entered a competition to attract it. Central and Eastern European Countries (CEECs), which, until the early 1990s were closed to FDI, are now among the most proactive emerging economies as regards FDI attraction policies, and are establishing themselves as relevant players in the European Union's 'race' for FDI.

This dissertation focuses on Central and Eastern European former state-planned economies and investigates why multinationals (MNEs) chose to locate their investments in these countries.

The most important FDI location determinants are identified based on an integration of leading theoretical frameworks from the International Business and Economics literature, aiming to explain location/relocation of investments (Product Life Cycle and Internationalisation Theories), FDI location due to market failure (Internalisation Theory), relative location advantages (OLI framework and Agglomeration), as well as on state-of-the-art empirical literature on FDI determinants (particularly on CEECs).

The relevance of these determinants, about which several hypotheses are formulated, is tested empirically through a panel data econometric estimation method on a sample of 10 CEECs over the twelve year period between 1993 and 2004.

The main findings are that market potential, privatisation and agglomeration factors have significant effects upon FDI location choice, helping to explain the attractiveness for FDI of these host countries. In contrast with a considerable part of extant empirical literature, labour costs, trade openness and industrial concentration appear not to be the most relevant factors explaining FDI location choice within Central and Eastern Europe. This suggests that investors into CEECs in this period were mainly motivated by market-related factors, by the one-off opportunities offered through privatisation and by agglomeration due to economies of urbanisation. Even if often investors prefer low cost

locations, this does not influence their location choice within CEE. These findings may also indicate that the relevance of FDI determinants changes over time (costs per se being more important in the past than in the most recent years as regards location in CEECs), and that, in a location choice, different determinants apply to distinct investors.

Keywords: Foreign Direct Investment, Multinational Enterprises, $CEEC_s$, location determinants, panel data models

Resumo

O Investimento Directo Estrangeiro (IDE) tem-se tornado cada vez mais importante no financiamento do desenvolvimento e investimento nos países receptores. O IDE é considerado positivo por varias razões, entre as quais o facto de ser um veículo para o desenvolvimento económico (e.g. através de impactos favoráveis na balança de pagamentos, promoção de exportações, criação de postos de trabalho e transferência de um vasto leque de recursos – financeiros, tecnológicos, competências organizacionais), um substituto parcial para a ajuda externa e um promotor de estabilidade económica. Dada a sua crescente importância e implicações, a competição com vista a atraí-lo é cada vez mais tenaz. Os Países da Europa Central e do Leste (PECOs) que, até ao início da década de 1990, se encontravam fechados ao IDE, encontram-se actualmente entre as mais proactivas economias no que diz respeito a políticas que visem atrair o IDE, e estão a estabelecer-se como participantes de peso na "corrida" protagonizada por países da UE ao IDE.

Esta dissertação debruça-se sobre economias previamente controladas pelo estado na Europa Central e do Leste e investiga as razões que levam empresas multinacionais a escolher estes países como recipientes de investimento.

Os determinantes mais importantes da localização do IDE são identificados com base na integração das mais relevantes teorias e literatura pertinente de Economia e Negócio Internacional, com o objectivo de explicar a localização/relocalização de investimentos (*Teoria da Ciclo da Vida do Produto* e *Teoria da Internacionalização*), a localização do IDE quando existem falhas colapso de mercados (*Teoria da Internalização*), vantagens relativas da localização (*Paradigma Ecléctico* e *Teoria da Aglomeração*), assim como em recente literatura empírica respeitante aos determinantes do IDE (particularmente nos PECOs).

A relevância destes determinantes, a respeito dos quais diversas hipóteses são formuladas, é testada de forma empírica através de um método econométrico de estimação (*dados em painel*) com base num universo de 10 PECOs ao longo do período de doze anos entre 1993 e 2004.

As principais conclusões são que factores relacionados com o potencial do mercado, a privatização e a aglomeração têm efeitos significativos na escolha da localização do

IDE, ajudando a explicar o grau de atractividade para o IDE que estes países de têm. Em contraste com uma parte considerável da literatura empírica existente, o custo da mão de obra, o grau de abertura do mercado e o nível de concentração industrial não parecem ser os factores relevantes na determinação da localização do IDE na Europa Central e do Leste. O modelo empírico contido nesta dissertação sugere que investidores nos PECOs têm sido motivados primordialmente por factores relacionados com o mercado, por oportunidades únicas oferecidas pela privatização e pela aglomeração resultante de economias de urbanização. Ainda que os investidores prefiram localizações com baixos custos, este factor não parece influenciar a sua escolha dentro da Europa Central e do Leste. Estas conclusões podem também indicar que a relevância dos determinantes do IDE muda com o tempo (os custos em si tendo sido mais importantes no passado do que em anos recentes no que diz respeito à localização nos PECOs), e que, na escolha de uma localização, determinantes diferentes aplicam-se a investidores distintos.

Palavras chave: Investimento Directo Externo, Empresas Multinacionais, determinantes de localização, $PECO_s$, dados em painel

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2SLS	Two Stage Least Squares
3SLS	Three Stage Least Squares
AMECO	Annual Macro Economic database
CEE	Central and Eastern Europe
CEECs	Central and Eastern European Countries
CIS	Commonwealth of Independent States
EBRD	European Bank for Reconstruction and Development
EEC	European Economic Community
EIRO	European Industrial Relations Observatory
EU	European Union
ESA	European System of Accounts
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GLS	Generalised Least Squares
GMM	Generalised Method of Moments
GNP	Gross National Product
IB	International Business
ICT	Information and Communication Technologies
ILO	International Labour Organisation
IMF	International Monetary Fund
M&A	Mergers and Acquisitions
MNE	Multinational Enterprise
OECD	Organisation for Economic Cooperation and Development
OLI	Ownership, Location and Internalisation
OLS	Ordinary Least Squares
OPT	Outward Processing Trade
PLC	Product Life Cycle
POLS	Pooled Ordinary Least Squares
R&D	Research and Development
RTD	Research and Technical Development

SEE	Southern and Eastern Europe
SIC	Standard Industrial Classification
UNCTAD	United Nations Conference on Trade and Development
US	United States of America
USSR	Union of Soviet Socialist Republics
VIF	Variance Inflation Factors

Introduction and Plan of the Dissertation

The importance of foreign direct investment (FDI) to development is generally acknowledged (Mudambi, 2001; OECD, 2001). Compared to other forms of capital flows, FDI is preferred because more than being a vehicle for the transfer of capital, it usually facilitates the transfer of technology, promotes corporate governance practices, fosters human capital development and it is more stable than other capital flows (OECD, 2001). Its relative stability, notably in periods of crises affecting emerging economies[1], resulted in it being called the "good cholesterol" (Hausmann and Fernández–Arias, 2000). Within this framework, the location of FDI and the factors driving FDI location decisions become important issues. Another worth mentioning phenomenon refers to the recent and significant increase in FDI flows towards developing countries.

The beginning of the 1990s brought a number of important events impacting on the World market, such as the fall of the Iron Curtain, the economic opening of China and major changes in the economic and political regimes in several Latin American countries. The reintegration of these emerging economies in the world economy, along with the noteworthy progress in communication technology and transports, the reduction of trade barriers and restrictions on international capital flows, and the ever more intense globalisation of production magnified significantly the importance of FDI, and influenced its ever more diversified spatial allocation. The world FDI stock was almost 12 trillion US dollars in 2006 compared to only 1.5 trillion US dollars in 1989. Within this period, the share of developing countries and transition countries in global FDI stocks increased (from 20.5% in 1990 to 30% in 2006) (UNCTAD, 2007). However, FDI allocation between these countries is notoriously asymmetric and the determinants that motivate investors to target a certain location need to be better identified and understood.

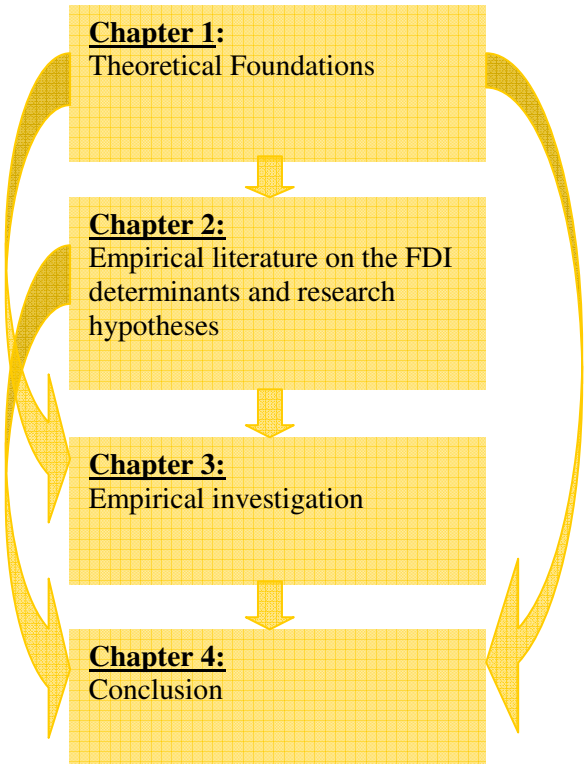
[1] The term "emerging economies" was first used by Antoine van Atgmael (1981) who coined the expression in order to replace the negative connotation "third world" ; it means an economy with low-to-middle per capita income that is fast growing

This dissertation aims to shed light on the relevance of these determinants, particularly focusing on the case of CEECs during their transition towards a market economy (i.e. since 1989 until recent years). In doing so, the dissertation contributes to understanding FDI in CEE and to link it to relevant theories; and to examine the main FDI motivations influencing investors' location choice.

Within this context, and more specifically, the analysis seeks to address the following research question: ***"Why do MNEs locate their investments in Central and Eastern Europe?"***

Various determinants, which were selected based on a thorough review of the available literature, are tested in order to answer the research question. These include traditional indicators such as market potential; labour costs; transition-specific indicators e.g. privatisation; trade openness and agglomeration. The analysis focuses on ten CEECs over the period 1993-2004, which is, considering the literature, one of the longest time spans for this range of CEECs used in an empirical study. With the purpose of testing quantitatively the relevance of the above mentioned factors, a panel data analysis is run using a random effects model.

The structure of the dissertation is illustrated in the figure below.



The first chapter will lay down the theoretical bases underlying this study, explaining which conceptual frameworks are more useful in order to capture and understand the relevant dimensions of the phenomenon under research (FDI location determinants). After this identification and integration of the most applicable theoretical approaches, a review and discussion of the leading empirical literature on FDI determinants (particularly focusing on the context under analysis, CEE) is conducted in Chapter 2. Chapter 3 includes the empirical part (and, indeed, the core of this dissertation), undertaking a panel data econometric estimation testing the relevance of selected FDI determinants on a sample of ten CEECs over a period of twelve years (1993-2004). The final section concludes, establishes the implications and limitations of the study, and presents some avenues for future research.

1 Theoretical foundations

1.1 Overview

This chapter aims to bring into attention some of the most relevant theories and paradigms that exist in the international business (IB) literature and that help to better define and answer this dissertation's question: *why do multinationals choose CEECs as investment locations*?

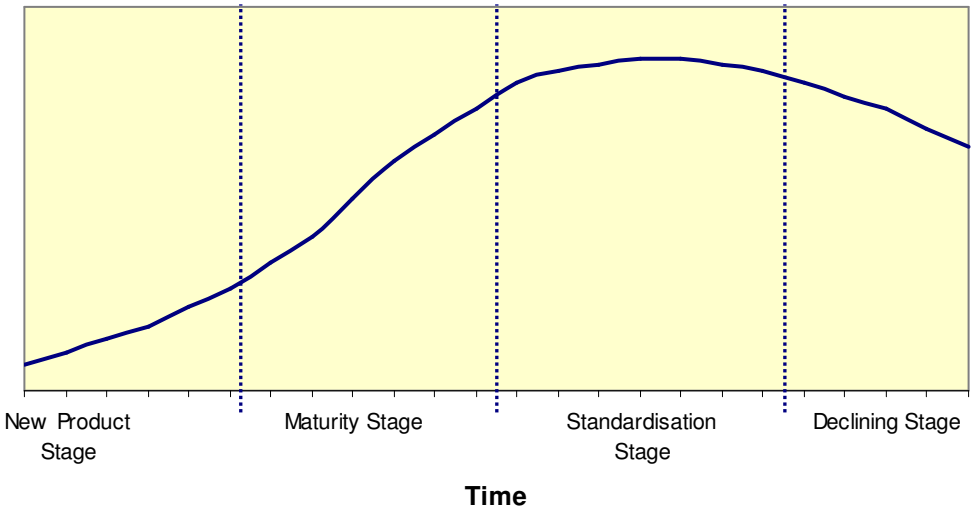
The selected theories thought to explain the FDI location are: Product life Cycle, Internationalisation, Internalisation, the OLI Paradigm and Agglomeration theory.

1.2 Product Life Cycle

Vernon (1966) developed a model built essentially on the internationalisation patterns of American companies. The main tenet of his theory refers to the fact that the dispersal of new technology is made gradually, this generating temporary differences between countries in production technology. The internationalisation process is described following the stages of the product life cycle (PLC) and might be considered the first serious attempt in explaining the location of foreign production.

Product Life Cycle – stages

Figure 1.1: Product Life Cycle



Source: own elaboration based on Vernon (1966)

First stage: New Product Stage

The theory was explained from the perspective of the US market, which is characterised by high average income, high unit labour costs and relatively unrationed capital. These conditions influence both consumer and industrial goods and create a strong incentive for R&D to take place. US companies develop innovations and choose the US as a location for production due to "locational considerations that extend beyond simple factor cost analysis plus transport considerations" (Vernon, 1966: 196), notably:

- ease of communication with the home market;
- necessity of using specialised labour;
- need for flexibility;
- the price inelasticity of the demand due to the high degree of product differentiation and the high average income;
- there is no demand overseas the production being sold only on the home market;
- at this stage there is no internationalisation.

Second stage: Maturing Product Stage

At this stage, demand and production expand, the demand abroad develops and US companies start exporting. As the product still has a high price and satisfies the needs of high income consumers, the privileged location for exporting is Western Europe.

Some standardisation occurs, thus the uncertainty and the need for flexibility declines. The presence of monopoly profits stimulates more companies to enter the market (be it home or export market), although these firms cannot entirely compete based on the product's characteristics. In their attempt to maintain the monopoly position, the innovating incumbent firms start to consider investing in foreign locations. Because manufacturing processes of maturing products still require significant inputs from the local economy, such investments are made in developed countries.

In case a foreign subsidiary is established, production cost differences between rivals are usually differences due to scale, labour costs and transportation costs implied in exporting the product back to the home country.

As products and technologies mature, the initial advantages are gradually lost. First, the former innovations are substituted by imitation products manufactured in other developed countries, and then made in developing countries.

Third stage: Standardised Product Stage

Standardisation appears when output volume is high and uncertainty is low. Once set up in larger markets, offshore production facilities would serve local markets with local production, substituting for exports. The market would expand, since the product's price would be reduced by local production (lower labour costs and elimination of transport costs). This lower price would encourage the growth of markets in less developed countries, which might well be served not from the home country factories but from foreign establishments. As the product becomes standardised, the firm might invest in the fastest growing less developed countries, where economic growth has created new markets and investments might be located. At a later stage in the standardisation of some products, less developed countries can offer comparative advantages for the location of production.

Fourth Stage: Declining Product Stage

This fourth stage of the PLC was added by marketing scholars (Kotler, 1980).

The location of production is moved to even cheaper facilities by investing in less developed countries, the market is shrinking and the tastes of the consumers changed probably due to the fact that more innovative products are introduced. Price competition is very intense and the product is sold at cheaper prices. Depending upon the product type and profitability, production might be discontinued.

Vernon's theory can be considered a theory of relocation of industries over time. However, the evolution of MNEs suffered some changes since he developed his model (well established network of MNEs around the world, high decrease of the gap between US and the other developed countries, increased ability of local companies to imitate products). Vernon himself wrote later a critique of his own model (Vernon, 1979), suggesting that it was much less general than he had posited earlier.

Vernon's dynamic approach aims in fact to explain market-seeking FDI and tries to link the company's specific advantages to the location advantages of the host countries.

The choice of locating investments in CEECs can be partly explained by the PLC. CEE can be seen as a developing market characterised by relatively low labour costs and relatively skilled labour and by the existence of new needs and an increased demand. In accordance to Vernon's model foreign investments would be placed in CEE in the third

phase of PLC. The first countries to attract FDI should be the most developed, which is indeed confirmed because Hungary, Czech Republic and Poland received the largest investments in the area in the 1990s. An interesting remark made by Magyar Nemzeti Bank (2005) supports the pertinence of the PLC model for CEE. They asserted that many FDI projects from Western countries originate indirectly from the US. The US MNEs placed their investments in Western Europe and at a next stage these investments were relocated in CEE. The motivation for relocation might consist on the fact that CEECs are able to catch-up with the new technologies; the demand exists due to larger markets, increasing income and cultural proximity leading to a convergence in convergence in tastes. These are some reasons due to which the PLC could explain investment relocation in CEE.

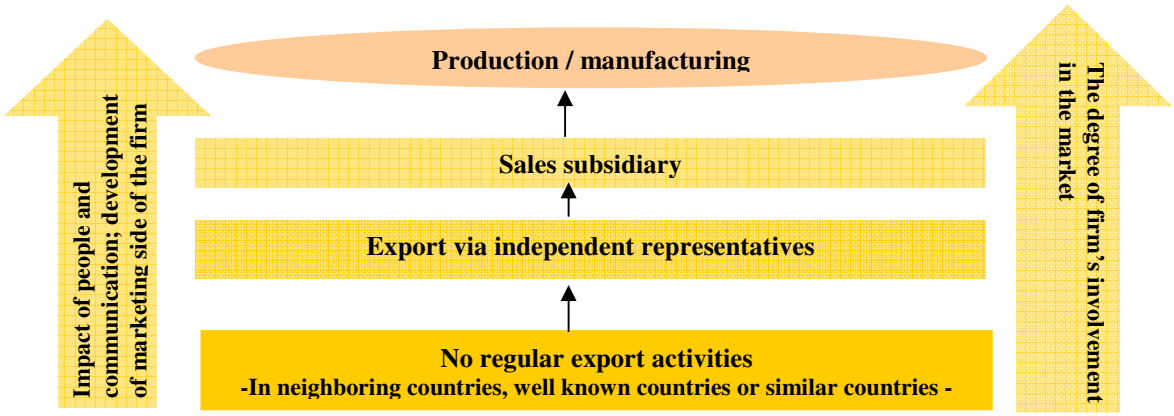
1.3 Internationalisation Process Models

Internationalisation is a key issue in international economics and international business research. There are multiple definitions that look to explain the term; it is seen as a process in which specific attitudes or orientations are associated with successive stages in the evolution of international operations, "a process of increasing involvement in international operations" (Welch and Luostarinen, 1988: 8) or "the process by which firms both increase their awareness of the direct and indirect influences of international transactions on their future, and establish and conduct transactions with other countries" (Beamish, 1990: 77). Since the late 1950s, the interest in the internationalisation process of the firm grew, as did research in the area. With Johanson and Wiedersheim-Paul (1975), Johanson and Vahlne (1977) and Luostarinen (1979), the focus changed to an analysis of the international activities' features and of the difference between growth at home and internationalisation.

Johanson and Wiedersheim-Paul (1975) analysed the location dynamics of firms. They suggested that internationalisation is a gradual process rather than a large, spectacular foreign investment. They considered that first the firm develops in the domestic market and internationalisation is the consequence of a series of incremental decisions. The lack of knowledge and resources are considered the main obstacles to internationalisation. Focusing on the experience of four small Swedish firms (their first

empirical setting), Johanson and Wiedersheim-Paul (1975) propose the following framework, that they term *establishment chain* (Figure 1.2):

Figure 1.2: The establishment chain – Internationalisation Theory



Source: Own elaboration following Johanson and Wiedersheim – Paul (1975)

The four stages describe in fact a gradual rise of the firm's commitment to foreign markets.

This idea is further developed in the "Uppsala internationalisation model" (Johanson and Vahlne, 1977). The model posits a *stages approach*: firms start with less risky forms of internationalisation in psychically close markets and gradually increase their commitment and geographical reach through a process of experiential learning (Johanson and Vahlne, 1977 and 1990). Johanson and Vahlne (1977) propose a behavioural view of internationalisation focused on the impact of international experience on the speed and direction of subsequent internationalisation. The market knowledge of the firm is seen in direct relation with the market commitment, the model aiming to distinguish how experience factors influence the internationalisation process.

Instead of predicting a certain order of entry modes, Welch and Luostarinen (1988) affirm that development takes place both though deeper committed and more diversified operation methods. The decision to internationalise and the location chosen are seen as a part or as a consequence of the company's strategy that is defined as being an entrepreneurial action.

Later literature focuses on network relationships' impact upon internationalisation. Coviello and Munro (1997) tried to explain how network relationships of small firms

influence the foreign market selection and the mode of entry. The internationalisation model they proposed has only three stages: foreign market intention (year 0-1), active involvement and evaluation (year 1-3) and committed involvement (year 3+). The decision to internationalise appears very rapid and the modes of entry are multiple and different.

Internationalisation models cover four theoretical perspectives: economic, behavioural, network and entrepreneurship-based. Although knowledge and learning are the key aspects in internationalisation models, due to the global changes in the economic world, internationalisation is not so simplistic anymore. Concepts such as *born globals* (McKinsey & Co., 1993), i.e. firms which have intensive exports during the first two years after their foundation, *high technology start-ups* (Jolly *et al.*, 1992) that have from the start their strategy pointed towards global niche markets, *international new ventures* (Oviatt and McDougall, 1994) and *leapfrogging* situations (Hedlund and Kverneland, 1985) appear increasingly often when the theme of discussion is internationalisation.

The studies mentioned above could guide our search upon location by explaining the variation in expansion processes. In the specific case of CEECs "the pattern observed in regard to host and source country of FDI inflow is greatly consistent with the predictions of the Uppsala School" (Tondel, 2001: 33). Mainly due to the fact that before 1989 CEECs were not integrated in the world market, uncertainty and risk dissuaded foreign investors.

These factors and the need for local knowledge affect the degree of their implication on the market and might support the sequential entry described by Uppsala school. As in the case of the PLC, internationalisation explains the relocation of investments, however it is explained through the fact that the incremental process is due to lack of knowledge about the foreign country and tendency to avoid uncertainty.

1.4 Internalisation theory

The intellectual roots of internalisation theory can be traced to Coase (1937) and Williamson (1975). According to Coase (1937:5), the existence of organisations is attributed to market failure that induces what he called then "marketing costs". Therefore, firms are constantly weighing the total costs (including transaction costs and production costs) of the market and hierarchy modes. The theory of the firm he helped

to found considered new forms of productive activities such as franchises, sub-contracting and other non-standard forms of organization.

Williamson (1975, 1981) followed up that companies want to minimise their total costs, which are made up of both production and transaction costs. An important contribution of this author rests in identifying the variables (frequency, uncertainty, asset specificity) that determine whether market or hierarchy are going to have lower transaction costs in various circumstances.

Transaction costs have been defined as "costs of arranging a contract *ex ante* and monitoring and enforcing it e*x post*" (Matthews, 1986: 906) and as "costs of running the economic system" (Arrow, 1969: 48). The concept of transaction costs has been widely used to analyse different issues. These include analysis of organisational structures (for example whether vertical integration is preferable to contracting), causes of market failure (asymmetric information) and policy choices (administration costs associated with policy implementation). More specific the types of transaction costs are (Dahlman, 1979):

- search and information costs (before the transaction at least one of the parts has to search for a possible partner and inform him/her about the prospect);
- bargaining and decision costs (costs with travels, lawyers, other specialists, warranties, prepayments, payments in instalments);
- policing and enforcement costs (costs with monitoring or policing the other party in order to be sure that the contract is respected).

Buckley and Casson (1976) transformed internalisation into a full theory of international business and multinational activity. Other important contributors to this theory are Hennart (1982, 1987, 2000) and Rugman (1981).

Based on empirical evidence on the global pattern and evolution of FDI, and building upon the theory of the firm (Coase, 1937), Buckley and Casson transferred the centre of attention of international business literature from the country specific analysis towards industry level and firm level determinants of international investment flows.

Internalisation theory, as developed by Buckley and Casson (1976), has three main assumptions:

i) companies maximise profits in a world of imperfect markets;

ii) when markets for intermediate products are imperfect, the incentives to avoid them appear by creating internal markets, meaning that the activities that are linked are controlled by common ownership;

iii) internalisation of markets across boundaries generates the appearance of multinational enterprises

Two types of markets are analysed with particular detail, notably the market for intermediate products in certain multistage production processes and the market for knowledge (Buckley and Casson, 1976). These authors emphasise the ability to innovate as the crucial firm-specific advantage that determines internalisation across international boundaries. They conclude that the incentive to internalise depends on the interplay of industry- specific, region- specific, nation-specific and firm-specific factors. Using "location effect" criteria, a national market is served either by local firms or by exports (Buckley and Casson, 1979: 55). The location strategy depends upon several factors as (Buckley and Casson, 1979: 56):

- *increasing return to scale in many activities* that leads to "relocation of plants involved in quite remote stages of production, and to reorganisation of the entire network of trade" ;
- *modern businesses perform many activities other than routine production* (marketing and R&D). These activities influence location because their costs differ from the ones of the routine production and because they employ a "locational pull on routine production";
- *markets are imperfectly competitive;* Therefore, MNEs are not in many cases price takers in intermediate product and factor markets;
- *government intervention* – influence of taxes, tariffs and other regulations;
- *ownership effect.*

Buckley and Casson (1976) conclude that, because of market imperfections, the optimal location cannot be chosen based only on evaluating the regional production cost as it was done under the assumption of perfect markets where all firms are price takers and the only barrier to trade relates to transport. In turn, Rugman (1981) proposed the idea that MNEs appear because of the internalisation of the failure of the market for information. Casson (1998) made other important contributions by setting the theory of

the firm within a holistic view of the economy, where the information flow has potentially the same importance as the material flow.
Internalisation theory posits that MNEs are created when international market transactions for intermediate goods are brought inside the firm, or internalised, in order to reduce the cost of organising or controlling transactions. The theory helps us in determining what the boundaries of the company are and what activities should be internalised. Knowledge plays an important role when assessing transaction costs.

The implications upon location choice are relevant. In order for transaction costs to be evaluated, MNEs' decision-makers should be knowledgeable about the imperfections existing in a certain location, otherwise without facing them there would be no need for such a decision. Internalisation thus explains FDI location choice in any market characterised by market failure. CEE is one such market. The main transaction costs that are encountered in this region refer to lack of transparency and imperfect information as well as unstable bargaining situations, mainly due to the fact that markets were created before institutions (Meyer, 2001).
Being a "new" market with a new and relatively high demand, in many situations MNEs are not price takers and they prefer to maintain their ownership advantage instead of selling or transferring knowledge.
Internalisation theory does not explain why overseas production is considered the most attractive mean of exploiting the firm's advantage. The eclectic paradigm proposed by Dunning (1977) addresses this issue.

1.5 The eclectic paradigm

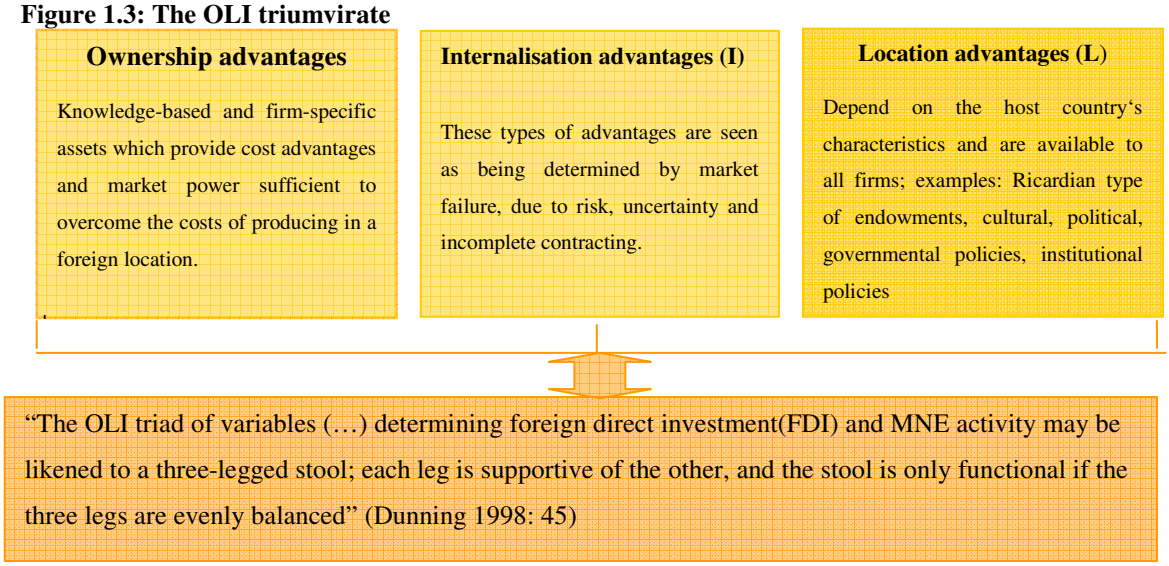
Dunning (1977) proposed a general framework seeking to explain the existence and the growth of multinational enterprises. The eclectic paradigm aimed to be a synthesis of extant theories relevant to explain international production (including, among others, the product life cycle, internalisation theory, and international trade theories).

Dunning's eclectic framework, or "OLI Paradigm" (1977, 1981, 1988) combines the effects of ownership factors (rent-producing firm skills), location factors (environmental

differences), and internalisation factors (transaction-related concerns), to explain the structural choice of exports, licensing, or investment to enter a foreign host market.

According to Dunning, multinational enterprises engage in foreign production only when they capture simultaneously three specific advantages (Figure 1.3):

Figure 1.3: The OLI triumvirate



Source: Own elaboration based on Dunning (1995, 1998)

Ownership (O) advantages represent the capacity of one country's company to possess or acquire certain assets not accessible (or not accessible in favourable terms) to some other country's company. O-advantages are seen as unique factors meant to overcome the *cost (liability) of foreignness* (Hymer, 1960/1976; Zaheer, 1995). The cost of foreignness is a competitive disadvantage of a MNE's subsidiary located abroad These costs are commonly defined as "all additional costs a firm operation in a market overseas incurs that a local firm would not incur" (Zaheer, 1995: 342) and are classified into four types of sources that differ among countries: costs associated with geographic distance (travel, communication, transportation), costs due to the unknown local environment, costs due to lack of legitimacy of foreign companies and economic nationalism, and costs from home country environment. The cost of foreignness is seen as affecting more market-seeking/horizontal MNEs than vertical MNEs, as horizontal MNEs compete with local firms for a share of the local market, i.e. they depend more upon local markets than vertical organizations (Zaheer, 1995).

Hymer (1960/1976) asserted that, in order to prevail over the disadvantages they face when competing with indigenous firms, MNEs must have some advantages specific to their ownership. This idea was inspired by Bain's (1956) work that saw the costs of foreignness as a barrier to competition in domestic markets (Bailey and Driffield, 2002).

Dunning refers that location factors (country-level factor price advantages) determine the choice of production site; and that internalisation (transaction cost) factors dictate whether overseas production will be organised through markets (licensing) or hierarchies (FDI). Although Dunning does include certain aspects of the oligopoly power model and of location economics, he relies on internalisation arguments to justify the use of one entry mode or another after the product and market are selected. He also continues to define multinationality by the use of FDI.

The advantages of internalisation are determined by market failure encountered in CEE. Various imperfections, risks and uncertainties are present on these markets and can be avoided by internalising them within the firm.

Location (L) advantages are external to firm and, in order to identify them, Dunning (1977) proposed to analyse first the network (the O-advantages) and then to determine how that precise location facilitates internalisation of intermediate product markets. The location advantages arise from differences in factor endowment, transport costs and distance, artificial barriers, and infrastructure and incentives existent at different foreign locations.

A set of location variables are specified, the most important being the following:

- the spatial distribution of natural and created resource endowments and markets;
- input prices;
- quality and productivity;
- international transport and communication costs;
- investment incentives and disincentives;
- artificial barriers to trade in goods and services;
- economies of centralisation of R&D production and marketing;

- institutional framework for resource allocation and cross country ideologies;
- language, cultural, business, political differences and environmental conditions.

The OLI framework offered by Dunning (1977) is very often used in the literature to explain the location of international business. Location advantages contribute to competitive advantage. Analysing the variables proposed by Dunning (1977), we observe that advantages may appear at three levels: country, industry and firm level.

The OLI paradigm helps in explaining why MNEs invest in CEE and why CEECs attract FDI. There is clear evidence that MNEs which located their investments in CEE possess ownership advantages such as technological assets, firm specific knowledge-based assets, logistic and distribution advantages or a strong commercial brand; and are able to carry out their activity and to overcome the costs of producing in these emerging markets. CEE's market is imperfect; therefore there is often the need for internalisation. In order to close the triumvirate, the location (L) advantages are considered. The propensity of a firm to initiate foreign production will depend also on the specific advantages of its home country compared with resource implications and advantages of locating in another country. The strategic location is the location that has a comparative advantage against the home country. CEECs can be such a location and the potential determinants that give this advantage are discussed in later chapters.
Compared to the other theories mentioned (PLC, internationalisation and internalisation) the OLI paradigm may be a too general and static theory of FDI involvement (Axinn and Matthyssens, 2001) but it is the first one to name and specify the strategic location and nevertheless presents an adequate approach for analysing why do MNEs invest in CEE.

1.6 Agglomeration

The role of agglomeration economies for location choice became an important subject in urban, regional and international economics. The main idea is that the clustering of economic activities results in costs savings and productivity increase for companies influencing in this way their location (Hilber and Voicu, 2007).

The early agglomeration concept was defined by Marshall (1890) as being a spatial concentration of firms that magnifies the initial advantages of the location. Cost-saving scale effects might be obtained as a result of the concentration of industrial facilities in a single location. These cost effects determined by agglomeration are called agglomeration economies. Agglomeration economies might take place within the same industry (*localisation economies)* or might appear at the regional level (*urbanisation economies).*

Marshall's (1890) work emphasises such scale effects. The main idea consists on the fact that a firm located near other firm benefits from external economies which appear from:

- deep labour pools (because of the high level of flexibility);
- better information and access to information (encourages R&D activities); and
- well-developed intermediate input suppliers (reduces the transaction cost).

Marshall (1890) describes very well agglomeration advantages in what he coined the *industrial district*. The pool of specialists and trained employees is expected to grow when industry expands in a certain location. In Marshall's opinion, locational clustering of firms leads to the increase of other companies' learning processes due to the exchange of ideas. It is like a snowball effect, "if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the sources of further new ideas" (Marshall, 1890: 271).

Two important factors related to the agglomeration concept are externalities and positive spillovers. By externalities, we understand the costs or benefits of transactions that are not reflected in prices (Griliches, 1979). These might be divided into two types: technological externalities (that occur from non-market interactions between firms that have the same location) and pecuniary externalities (that appear because of the market interactions and might be part of activities that influence the cost) (Griliches, 1979). Because the newly created knowledge can be appropriated only to a limited extent, knowledge obtained by one firm might spill over to other firms. Knowledge spillovers are geographically bounded to the region where the knowledge was created (Feldman and Audretsch, 1999). Knowledge spillovers appear when the knowledge created by one agent can be used by another without costs or, with fewer costs than the value of the knowledge (Jaffe, 1996).

A significant implication for the present research is the emphasis on the importance of space. Knowledge spillovers diffuse faster in agglomerations, the importance of space coming from the assumption that dispersal of knowledge as a positive externality it is spatially limited (Döring and Schnellenbach, 2004). In the case of tacit knowledge is even more obvious that proximity is important, due to the fact that it is transferred through direct interaction between individuals. Other implication they reached is that when certain locations have a larger stock of knowledge, they tend to be characterised by sustained growth rates, increasing returns and other positive externalities that attract new investors.

An important remark consists on the fact that the existence of a too large or too small technological gap does not encourage the diffusion of spillovers (Cohen and Levinthal, 1990; Perez, 1997; Tavares and Young, 2005). Other determinants of absorptive capacity are: cultural and psychic distance, degree of foreign ownership, trade protection and institutional framework, nature of industries and host countries, size of the firm and the development level of the country. If the economic framework is not favourable then "there are no spillovers if there is nothing to spill into" (Tavares and Young, 2005: 6).

A relevant concept to this dissertation is clustering. Very often, agglomeration and clustering are used synonymously, but there is a slight difference between them. There are various definitions of the term cluster, the most commonly used being given by Porter (1990: 16) that sees a cluster as a geographically proximate group or geographic concentration of "interconnected companies, specialised suppliers and service providers, firms in related industries and associated institutions (…) in particular fields that compete but also cooperate (…) linked by commonalities and complementarities".

The definition of cluster is based on the strength of inter-firm linkages giving more importance to specialisation, while agglomeration is based upon locational concentration and gives equal importance to proximity and specialisation. Krugman (1991) argued that the origin of clusters exists due to economies of scale rather than comparative advantage. Porter (1990) asserted that clusters improve the access to specialised inputs and information and the rate of success and innovation, lowering simultaneously the barriers to new business formation. He stated that "traditional"

agglomeration economies were focused on cost minimisation, while nowadays a shift to productivity occurred.

Another perspective that gives importance to location and agglomeration is the *new economic geography.* This literature suggests (Fujita, 1988; Krugman, 1991; Venables, 1996) that firms tend to locate where other companies from the industry are located, its defining issue being "how to explain the formation of a large variety of economic agglomeration (or concentration) in geographical space" (Fujita and Krugman, 2004: 140). A key framework for the new economic geography is Krugman's (1991) *core-periphery model*. The model considers two forces that are explained in terms of more fundamental micro decisions: the centripetal force that pulls economic activity together and the centrifugal force that pushes it apart. He demonstrated how the interactions among increasing returns, transport costs and factor mobility can cause changes in the economy's spatial structure. The first assumption is that when a larger number of companies are located in the same region, more varieties are produced there. The labour force from that region has a better access to a higher number of varieties and also a higher income comparing to the workers that are located in other regions. This situation will attract workers leading to the creation of a larger market. Hence, there is an incentive to concentrate production in one region and due to the savings related to transportation cost, that incentive is increased. In this way is created "circular causation of forward linkages (the incentive of workers to be close to the producers of consumer goods) and backward linkages (the incentive for producers to concentrate where the market is larger)" (Fujita and Krugman, 2004: 145). If the described linkages prevail over the centrifugal force, manufacturing is concentrated in one region and the economy will follow a core-periphery pattern[2] (Fujita and Mori, 2005).

Oligopolistic Reaction

A concept that has agglomeration implications is *oligopolistic reaction*, introduced by Knickerbocker (1973) in order to explain the motivation of the companies that are following the leaders. For a better understanding of the term, we may consider the definition given by Head *et al.* (2002: 454) that defined it as the "decision of one firm to invest overseas raises competing firms' incentives to invest in the same country".

[2] Myrdal (1957) developed a cumulative causation model demonstrating that most peripheral regions are doomed because of the cumulative causation pattern leading to the appearance of vicious circles.

Knickerbocker (1973) asserts that in an oligopolistic industry the companies would tend to follow each other's location choices. He considered three elements necessary for the oligopolistic reaction to take place:

- risk aversion – the more risk-averse the oligopolist is, greater chances are that he will invest in the same country as its rivals did;
- uncertainty; and
- the presence of oligopoly.

Once positive spillovers exist between companies that have the same location, companies obtain larger profits from clustering than from dispersing. One of the advantages which clustering offers is knowledge diffusion. That knowledge is one of the most important elements considered for agglomeration economies is generally accepted. Knowledge is seen as dependent on time and context and hence is continuously evolving. Hayek (1945) emphasised in economic literature the notion of dispersed knowledge, stating that such dispersion might appear spatially or among individuals. Later, the theory of economic growth (Solow, 1956; Swan, 1956) and the new growth theory (Romer, 1991) have shown that the availability of knowledge and its spatial diffusion are an important base for growth processes and at the same time they influence the speed of such processes.

Agglomeration may often explain MNEs' behaviour when choosing a location for their investments. Agglomeration creates a strategic location with easy access to international communications networks (which can be a relevant advantage offered by CEECs compared to other emerging countries), high quality external services, and good linkages between companies. An usual assumption in the 1990s was that manufacturing located in the EU "core" would shift to the "periphery". The extent to which this process took place is an interesting research subject, yet beyond the scope of this dissertation. Certainly, industrial agglomerations were created in the CEECs (among others, Hungary and its localisation economy in electronics; the urbanisation economy created in the Prague–Bratislava–Györ triangle) and their importance in attracting new FDI must be investigated. A survey made by Ernst and Young (2003) among business leaders placed the number of firms as being one of the first four most relevant criteria in choosing a location for new investments.

1.7 Motivations for foreign production

FDI scholars identified various motivations that support international production. Based in Behrman (1972), Dunning (1993) classified the motivations for FDI in *natural resource –seeking, market-seeking, efficiency-seeking, and strategic asset-seeking.*

Natural resource-seeking refers to the need to obtain natural resources that are location specific, and that cannot be found (at least in the same conditions) in the home country. This might be determined by the immobility of resources or by high transport costs that would occur in case of obtaining it from other locations.

Market-seeking is driven by the aim of supplying the local market or markets that situate in the proximity of the host country, and may be motivated by positive or negative location advantages such as taking advantage of large growing markets, avoid the import barriers, reduce uncertainty, have better access to information, reduce transaction costs or avoid high transportation cost. These ideas are based on Myrdal (1957) and Hirschman (1958)[3].

In its two forms (products and processes), *efficiency–seeking* aims to gain from the availability of and cost reduction of the factor endowments in different countries. Investments based on this cost-focused motivation "tend to be more 'footloose' than those justified by other (more embedded or location-dependent) motivations" (Tavares, 2001: 47).

Strategic-asset seeking registered a rapid growth in relevance the last decades (Dunning, 1998). In this case, MNEs look for assets that might be critical in the long-term and are not obtainable at home. Agglomerations may offer the opportunity to tap into strategic assets.

Dunning proposed motivations search to exploit firm specific advantages (Nachum and Zaheer, 2002), except strategic asset-seeking, that does not imply use of an extant O-advantage.

Other motivations for engaging in FDI are the competitive pressure exercised by major competitors that originates the "follow the leader" behaviour (Knickerbocker, 1973). In the last two decades, FDI motivations, and their relative importance, changed significantly. Presently, the most important motivations appear to be efficiency- and

[3] Hirschman (1957) referred to the importance of the backward and forward linkages of firms.

asset-seeking objectives, the latter emphasising mainly intangible assets, especially the ones embodied in human resources (Dunning, 2002). Nachum and Zaheer (2002) and Govindarajan and Gupta (2001) proposed a re-categorisation of the FDI motivations in broader ones: *Growth* (would include market-seeking), *Efficiency* (including all motivations based on cost), *Knowledge (*intellectual and social capital*)* and *Competitive Position* (motivations implying international expansion).

Regarding our specific case, CEE, at least in the beginning of the transition, market-seeking was the dominant FDI motivation (Kaminski, 2006; Lankes and Venables, 1996). Natural resource-seeking was not very important, except in a few industries (oil refineries, tourism). Cheap labour is considered to be one of the most important variables of efficiency-seeking. In later years, the transition from market-seeking to efficiency –seeking and network-type integrated FDI took place.

1.8 Concluding remarks

This chapter provided a review of the most important theories that make the foundation of our research question related particularly to FDI location. PLC explains the relocation of investment focusing on the timing of innovations, effects of economies of scale and, to a smaller degree, the role of uncertainty. Internationalisation addresses the relocation of investment using a model of incremental commitment to FDI location, knowledge and learning being the key aspects considered. Internalisation suggests that market failure is the main reason for which MNEs locate their activities in foreign locations. The relevance of strategic location is explained by the OLI paradigm and agglomeration theory. According to the mentioned theories, economies of scale, market failure, comparative advantage, and agglomeration effects are factors that should be considered when analysing the determinants driving FDI location decision.

2 Empirical literature on the FDI determinants and research hypotheses

Investments are made where conditions are favourable. Various location factors are considered to influence MNEs' decisions when choosing to carry out their production overseas. Several determinants were empirically tested in order to establish their significance for FDI location. This chapter aims to review extant leading empirical literature, then to posit hypotheses based on findings derived from such state-of-the-art literature.

Location determinants depend upon the motivation for FDI, the economic and business environment of the potential host country and upon the mode of entry or expansion chosen (Dunning, 2002).

The chapter starts by examining the literature aimed at testing FDI determinants particularly that focus more on CEECs. Based on its conclusions and on the theoretical background presented, the main hypotheses of the research are formulated.

A general classification of the determinants is presented in Table 2.1. From the determinants enumerated the most important for the research theme will be selected and discussed.

Table 2.1: Host country FDI determinants

Types of FDI classified by MNEs' motivations	Main economic determinants in host countries
I. Market-seeking	Market size and per capita income
	Market growth
	Access to regional and global markets
	Country specific consumer preference
	Structure of markets
II. Resource-seeking	Land and building costs/rents and rates
	Raw materials, components, parts
	Low cost unskilled labour
	Skilled labour
III. Efficiency- seeking	Cost of resources and assets listed under II, adjusted for productivity for labour resources
	Other input costs, e.g. transport and communication costs to/from within host economy and costs of other intermediate products
	Membership of a regional integration agreement conducive to the establishment of regional corporate networks
IV. Asset- seeking	Technological, managerial relational and other created assets embodied in individuals, firms or clusters of firms
	Physical infrastructure (ports, roads, power, telecoms)
	Macro-innovatory, entrepreneurial, educational capacity/environment

Source: Adapted from Dunning (2002: 15) and UNCTAD (1998: 91)

2.1 Market factors

Empirical evidence has shown that FDI is significantly and positively influenced by market factors (mainly market size and growth). Large markets provide the possibility to obtain economies of scale, to secure a relevant market share or even to stay competitive, increasing their attractiveness to FDI (Scaperlanda and Mauer, 1969; Schmitz, 1970; Goldberg, 1972; Lunn, 1980; Culem, 1988; Clegg, 1995; Wheeler and Moody, 1992; Holland and Pain, 1998; Bevan and Estrin, 2000). The results of the main papers that explicitly consider market factors are presented in Table 2.2.

Cross-country studies of FDI determinants analysed the size of host markets and some of their characteristics (national income and growth rates). Among the first econometric regressions that studied FDI determinants were the ones that focused upon American investments in the European Economic Community (EEC) (Scaperlanda, 1967; Scaperlanda and Mauer, 1969; Goldberg, 1972; Lunn, 1980; 1983; Scaperlanda and Balough, 1983; Culem, 1988; Clegg, 1995). All these studies were mainly focused on

market factors and on the level of tariff discrimination. Scaperlanda (1967) using data for 1951-1964 (divided into two periods, 1951 -1958 and 1951-1964) studied the impact of EEC creation upon the US FDI inflows in Western Europe. He found that the formation of the new market had no significant impact upon US FDI inflows to Europe.

Scaperlanda and Mauer (1969) used a different period in their analysis (1952-1966 divided into two time periods: pre- and post-EEC), and found market size significant but not market growth.

The results regarding the significance of the determinants obtained within that period are inconclusive because, due to different time horizons and lack of technical rigour, the results change from study to study (Tavares, 2001). Another limitation of the analysis at that time was the fact that the hypothesis was based on the neoclassical assumptions (Mundell, 1957) i.e. stating that FDI and trade are substitutes (Castro, 2000; Tavares, 2001).

Subsequent studies (Schmitz, 1970; Goldberg, 1972; Lunn, 1980; Culem, 1988; Clegg, 1995) considered the possibility that FDI and trade are complements. Schmitz (1970) expanded the Scaperlanda and Mauer's (1969) work, and using data for the same period (1952-1966) obtained evidence that market growth (EEC formation) influenced positively US FDI inflows. Other studies found market size and market growth significant for US FDI into the EEC (Goldberg, 1972; Lunn, 1980; Clegg, 1995).

Within the reviewed studies, there are few that found that market size and/or market growth are insignificant in attracting FDI (Lim, 1983; Culem, 1988). Lim (1983) studied FDI determinants in twenty-seven developing countries, concluding that foreign investors are more concerned with the economic performance in the long run than with recent market growth.

Several proxies were employed to measure market factors. Among them we can find GDP *per capita*, total GDP, and public consumption. The present research uses GDP growth rate for market potential.

For the specific region under analysis (CEE) different findings were registered.

Carstensen and Toubal (2004: 6) refer that an econometric analysis of the market size impact upon FDI inflows in CEE should be carefully developed because there is a "perverse but spurious relationship between FDI and market size if this is simply measured as the actual output of the host country".

Resmini (1999) investigated sectoral patterns of FDI in CEECs, trying to determine to which extent FDI in different sectors reacts to the same characteristics of the host country. She used a panel data of FDI in the manufacturing sector of 10 CEECs for the period 1990-1995 and found market size, transition stage, degree of openness of the economy and manufacturing concentration statistically significant.

Altomonte and Guagliano (2001) constructed a panel probit model of FDI determinants (over the 1990-1997 period for three thousand and five hundred European multinationals in three industries), investigating the FDI attractiveness of CEE and of the Mediterranean countries. They reaffirm the importance of market size and its positive influence for every sector and location studied.

Carstensen and Toubal (2004) carried out an econometric analysis for the period 1993-1999 comprising ten OECD countries and seven countries from CEE. When deciding the proxy for market potential, they did not consider only the host market but also the markets of all neighbouring countries, using as a proxy the average of the output of all countries in the sample weighted by an inverse distance measure which is derived on a region-to-region basis using transportation costs. From all the traditional variables market potential was found the most significant variable.

Kinoshita and Campos (2002) examined FDI location determinants in twenty-five transition countries from CEE and former USSR between 1990 and 1998. Agglomeration and host country characteristic determinants were taken into account. Without the agglomeration effect their model showed market size as being the most important determinant. Once the agglomeration effect was introduced (one year lagged-stock of FDI is used as a proxy) market size became no longer an important determinant.

Most of the empirical evidence shows, therefore that market factors are significant locational determinants. Reviewed investigations, both at country and sectoral level, suggested that most MNEs, regardless of their industry, invested in the CEECs to find new market opportunities. Giving the size and the growing potential of the CEE market and the possibility of obtaining economies of scale, a positive association with FDI is expected.

Hypothesis 1

Inward FDI is positively influenced by market growth.

Table 2.2: Summary of empirical studies on FDI including market size as a determinant

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Scaperlanda and Mauer (1969)	Least squares regression	Annual change in the book value of US FDI	1952-1958; 1959-1966 Host countries: EEC	GNP	Positive Significant	US investments in EEC
Schmitz and Bieri (1972)	Least squares regression	Share of US direct investment in EEC	1952-1966 Host countries: EEC	GDP lagged one period	Positive Significant	US investments in EEC
Goldberg (1972)	Least squares regression	Annual change in US FDI	1951-1966 Host countries: EEC	The absolute change in the EEC's GNP	Positive Significant	US investments in EEC
Lunn (1980)	Least squares regression	FDI of US firms to foreign affiliates	1957-1970 Host countries: EEC	The absolute change in the EEC's GNP	Positive Significant	US investments in EEC
Lim (1983)	Least squares regression	Average of the annual per capita total direct investment	1965-1973 Host countries: 27 least developed countries	Annual growth rate of real GDP	Insignificant	Investments in 27 least developed countries
Scaperlanda and Balough (1983)	Least squares regression	Annual change in the book value of US FDI	1953-1977 Host countries: 6 EEC	Gross National Product	Positive Significant	US investments in EEC
Culem (1988)	Generalised least squares	Share of FDI flows in the US GNP	1969-1982 Host countries: 5 EEC	Lagged real GNP of host country	Insignificant	US investments in EEC
	Generalised least Squares	Share of FDI flows in the US GNP	Host countries: 5 EEC	Annual percent growth rate of real GNP	Positive Significant	US investments in EEC
	Generalised least Squares	FDI bilateral flows	6 countries	Lagged real GNP of host country	Positive Significant	6 industrialised countries
Wheeler and Mody (1992)	Panel estimation, fixed effects	FDI in country "i" relative to FDI in some comparison country 'j"	1982-1988 Host countries: 42	GDP	Positive Significant	
Clegg (1995)	Multiple regression	Annual percentage change in FDI flows	1951-1990 6 host countries (EC)	GDP	Positive Significant	US investments in EEC

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Jun and Singh (1996)	Standard regression analysis and causality tests	FDI stocks	1970-1993 Host countries: 31	GDP per capita Growth rate of GDP	Positive Significant	Developing countries
Altomonte (1998)	Random-effects probit model	Number of investments	1990-1995 Host Countries: 10	Population GDP per capita	Positive Significant Insignificant	CEE
Barrel and Pain (1999)	Panel estimation, fixed effects	FDI stock	1978-1994 6 EU host countries	EU output in the sector	Positive Significant	EU
Resmini (1999)	Panel data, generalised least squares at sector level	FDI stocks	1990-1995 10 host countries	GDP per capita Population	Positive Significant	CEE
Altomonte and Gugliano (2001)	Panel probit model	Number of investments	1990-1997 Firm level data - 3500 MNEs;	Population Market access (GDP of host country/the average distance from "core" of Europe)	Positive Significant Positive Significant	CEE and Mediterranean
Kinoshita and Campos (2002)	Panel estimation, fixed effects and GMM	Per capita FDI stock	1990-1998 25 host countries	GDP per capita	Positive Significant	CEE
Carstensen and Toubal (2004)	Dynamic panel data, GMM	Bilateral FDI flows	1993-1999 7 host countries 10 home countries	Average of the output of all countries in the sample weighted by an inverse distance measure	Positive Significant	CEE
Merlevede and Schoors (2004)	Panel estimation, 3SLS	Share of a specific host country in total FDI flows to transition countries	1992-2002 Host countries: 25	Share of a country's GDP in total output of the region	Positive Significant	Transition countries; subsample 13 CEEC

Source: Own elaboration

2.2 Labour costs

Extant literature focusing on the influence of labour costs on FDI is rather inconclusive; some studies find it relevant (Caves, 1974; Saunders, 1982; Bevan and Estrin, 2000) while others find it insignificant (Owen, 1982; Gupta, 1983; Papanastassiou and Pearce, 1990). Among those studies that find labour costs significant, some find it positive (Swain and Wang, 1995; Walkenhorst, 2004; Bénassy-Quéré and Lahrèche-Révil, 2005 and Boudier-Bensebaa, 2005) while others find that labour costs affect negatively FDI (Lansbury *et al*., 1996; Barrel and Pain, 1999; Bevan *et al*., 2004).

Due to the low mobility of employment a significant influence of labour costs implies a change in the production location to regions where the labour is cheaper.

Before reviewing some of the most important papers it is important to define the concept "labour costs". ILO (2006)[4] defines labour costs as being "the cost incurred by the employer in the employment of labour" and containing the "remuneration for work performed, payments in respect of time paid for but not worked, bonuses and gratuities, the cost of food, drink and other payments in kind, cost of workers' housing borne by employers, employers' social security expenditures, cost to the employer for vocational training, welfare services and miscellaneous items, such as transport of workers, work clothes and recruitment, together with taxes regarded as labour cost".

In general, labour costs comprise: wage cost (which constitute the largest part of labour costs), other components (such as cost of food, bonuses, etc.) and taxes[5] (which are imposed on employment or on payrolls directly affect the cost to employers of employing labour).

Part of the empirical evidence shows that the influence of labour costs on FDI differs according to the type of industry (labour or capital intensive), to the investment's orientation, [domestic or export oriented (Agarwal, 1997)] and to the level of the host country development (developed and less developed countries) (Castro, 2000)].

[4] ILO, website http://laborsta.ilo.org/applv8/data/c6e.html accessed on 12/12/2006

[5] The taxes are requested by statistic resolution to be considered separately in order to facilitate international comparisons.

Insignificant evidence was found mostly for investments made in developed countries. Owen (1982) analysed inter-industry determinants of FDI in the Canadian manufacturing industry and found that the wage cost differential between the US and Canada was insignificant. Gupta (1983) following up Owen (1982) reached the same conclusion after running a similar model for US investments in Canada. For the same countries, opposite results were obtained when the productivity was considered also in the analysis (Caves, 1974; Saunders, 1982) (UNCTC, 1992). Buckley and Dunning (1976) when analysing US FDI in the United Kingdom, tested the influence of labour costs by using a comparative wage bill productivity (gross output per £1 wage bill) and concluded that the influence was insignificant.

Kravis and Lipsey (1982) aimed to understand how the behaviour of MNEs changed the location of world's manufacturing production and tested the determinants of US MNEs' decisions regarding the location of their activities. In order to estimate the significance of labour costs in the host countries they used as a proxy the units labour cost, which is the ratio between the quality adjusted average wage for each country and the output per worker. They reached the conclusion that the explanatory power of labour costs is weak. US companies tend to export from high-wage countries but labour costs are not a major influence on the location of export production.

Culem (1988), following the way paved by Scaperlanda and Mauer (1969), Schmitz and Bieri (1972) and Lunn (1980) in analysing US investments into the EEC tested the significance of two other locational determinants, namely unit labour costs and export flows. Among all determinants used (tariff discrimination, market size, market growth, exports, interest rate and labour costs), the search for low labour costs (expressed by unit labour cost and unit labour cost differential between host and investing country) did not appear to have motivated US FDI in EEC. Similar results were obtained when running the same model for EEC's investments in the US. Regarding the locational determinants intra-EEC, the coefficient of unit labour cost is significant and negative while the unit labour cost differential appears to be significant and positive. Culem (1988: 900) explains this paradox by the fact that "*ceteris paribus*, investors prefer low labour costs foreign locations, although this does not motivate their FDI".

Wheeler and Mody (1992) reached the conclusion that labour costs and infrastructure quality are the most relevant coefficients for developing countries. They aimed to extend the existing empirical work at that time by considering the agglomeration and the risk's influence along with classical location factors such as labour costs and market size. Using a data set of forty-two countries for the period 1982-1988, they found labour costs (expressed by average hourly wage in manufacturing) highly significant in the developing countries and still having a high elasticity in the developed economies.

In the specific case of CEE, after the end of the Communist period, the gap in terms of productivity and real wages between the former socialist and the developed countries was high despite the location proximity. The low wages were supposed to create a high incentive for Western economies to relocate their production and thus large FDI inflows to enter CEE (Meyer, 1997). Despite the qualified workforce, the productivity is low and the level of technical skills is not supported by "high managerial skills, nor entrepreneurial culture or willingness to take business risks" (Meyer, 1997: 6).

The efficiency-seeking strategies of MNEs in CEE are explained in relevant literature mainly in terms of wage costs (Resmini, 1999, Altomonte and Gugliano, 2001). The question if labour costs have a considerable importance when choosing a location is still a debate theme (Holland and Pain, 1998). In the analysed literature, labour costs are not considered isolated but along with other variables. Resmini (1999) found that wage cost differential between EU and CEECs is insignificant when choosing a FDI location, inexpensive labour being an incentive for outward processing trade (OPT) and not for investments. In CEE' case the reasoning is supported by the fact that in the long run wage differentials are going to become irrelevant. In the beginning of the 1990s, OPT drove CEECs manufacturing, especially in traditional industries such as clothing and leather and shoes (Lemoine, 1998). Cost-related considerations were important in the first phase of transition. In the late 1990s, FDI accelerated and industries like machinery, automotive and transport equipment gained importance. Compared to Asia, internationalisation based exclusively on cost considerations "had much less importance for emerging exporters in Europe than for a country such as China" (Lemoine, 1998: 159). The sectoral distribution

of FDI shows that comparative advantages of CEECs are in capital and natural resource-intensive sectors and less in labour-intensive sectors.

Lansbury *et al*. (1996) in their attempt to test the FDI determinants in CEE and to determine why Hungary and the Czech Republic attracted more FDI than Poland, used a panel data set for fourteen separate OECD investing countries and three host economies for the period 1991-1993. They suggested that relative labour cost is an important determinant for location in Central European economies and revealed that relative labour costs are important when making the distribution of FDI within CEEC.

In their survey, Lankes and Venables (1996) state that the wages of unskilled workers and the presence of skilled workers have a significant effect upon the investors decision to choose a certain location within Eastern Europe. They also suggest that productivity differences can affect the location decision, except in the case of investors that intend to bring new technologies with them.

Using a panel data, Bevan and Estrin (2000) state the contrary. They found that unit labour cost is an important variable when choosing a location, the attraction consisting in labour that is relatively inexpensive and productive. Positive evidence regarding the importance of relative labour cost for FDI location is also found by Carstensen and Toubal (2004).

As can be observed, different findings characterise the influence of labour costs upon FDI location in CEE. Most of the literature considers that low labour costs exert a negative influence upon FDI. At the same time, it was proved that the industries with higher wages and a higher wage growth attracted more FDI (Bedi and Cieslik, 2002) and even that labour costs had a positive influence upon FDI. It was relevant for certain industries and for the first phase of transition, but taking into consideration EU accession, on the long term its importance is expected to be less relevant (Agarwal, 1997).

MNEs might have moved their production facilities or opened new subsidiaries due to low labour costs in CEE compared to their home country, but it does not necessarily imply that they have chosen among CEECs the location with lowest labour costs. If the FDI motivation is mostly efficiency-driven a negative correlation shall exist between labour costs and FDI.

Following the OLI framework, the location choice among CEECs could be explained by the comparative advantage given by the cost of labour. In conclusion and despite the mixed results in the empirical literature, we give currency to this theoretical expectation and we advance the following hypothesis:

Hypothesis 2

Inward FDI is negatively influenced by labour costs.

Table 2.3: Summary of empirical studies on FDI determinants including labour costs as a determinant

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Culem (1988)	Generalised least squares	Share of FDI flows in the US GNP	1969-1982	Unit labour cost	Insignificant	US investments in EEC
Swain and Wang (1995)	Single equation model	Real annual change in FDI	1978-1992 Host: China, Hungary	Gross wage	Positive Significant	China and Hungary
Lansbury *et al.* (1996)	Panel estimation, no specific country effects	FDI bilateral flows in percentage of OECD flows	1991-1993 3 host countries 14 home countries	Unit labour cost	Negative Significant	CEE
Altomonte (1998)	Random-effects probit model	Number of investments	1990-1995 10 host countries	Gross wage	Negative Significant	CEE
Holland and Pain (1998)	Panel data	FDI inflows/GDP	1992-1996 11 host countries	Gross wage	Negative Significant	CEE
Barrel and Pain (1999)	Panel estimation, fixed effects	FDI stock	1978-1994 6 EU host countries	Unit labour costs	Negative Significant	EU
Resmini (1999)	Panel data, generalised least squares at sector level	FDI stocks	1990-1995 10 host countries	Wage differential between the EU and CEE	Insignificant	CEE
Woodward *et al.* (2000)	Conditional logit model	Firm-level data on Manufacturing investment	1990-1993 6 host countries	Total labour costs	Negative Insignificant	CEE
Bénassy-Quéré and Lahrèche-Révil (2005)	Panel gravity model, fixed effect specification	Bilateral FDI flows	1990-2002 EU25 home countries 10+EU15 host countries	Unit labour cost	Positive Significant	CEE
Bevan *et al.* (2004)	Cross-section regression	Bilateral FDI flows	1994-1998 18 home countries 12 host countries	Unit labour cost	Negative Significant	CEE
Bevan and Estrin (2000)	Panel gravity model, random effect specification	Bilateral FDI flows	1994-2000 11 host countries 18 home countries	Unit labour cost	Negative Significant	CEE
Carstensen and Toubal (2004)	Dynamic panel data framework Country pair-specific effects are not stochastic	Bilateral FDI- outflows	1993-1999 7 host countries 10 home countries	Unit labour cost	Negative Significant	CEE

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Disdier and Mayer (2004)	Conditional (nested) logit model	Firm-level data	1980-1999 Home: France Host: 19 (6 CEE)	Gross wage	Negative Significant	CEE
Galego *et al.* (2004)	Panel gravity model, random effects specification (country-pair effects)	Bilateral FDI flows/population of the host country	1993-1999 27 host countries 14 home countries	Total labour costs	Negative Significant	CEE
Janicki and Wunnava (2004)	Cross section regression	Annual FDI flows	1997 14 home countries Host: 9	Total labour costs	Negative Significant	CEE
Král (2004)	Vector autoregression model	Quarterly FDI inflows	1996-2002 Host: Czech Republic	Unit labour cost	Negative Significant	Czech Republic
Merlevede and Schoors (2004)	Panel estimation 3SLS	Share of FDI inward flows of one country to total FDI of all host countries	1992-2002 Host: 25 Subsample: 13 CEECs	Unit labour cost	Negative Significant	CEE
Walkenhorst (2004)	Tobit model	Cumulative FDI flows Data for the manufacturing sector	1991-1999 11 Polish sectors	Unit labour cost	Positive Significant	Poland
Bekes (2005)	Conditional (nested) logit model	Firm-level data of new investment in the manufacturing sector	1993-2002 20 Hungarian counties	Gross wage	Negative Significant	Hungary
Boudier-Bensebaa (2005)	Panel estimation, fixed effect specification	FDI stocks	1991-2000 20 Hungarian counties	Unit labour cost	Positive Significant	Hungary
Clausing and Dorobantu (2005)	Panel estimation, random effects specification	FDI stock	1992-2001 28 host countries	Total labour costs	Negative Significant	CEE
Demekas *et al.* (2005)	Panel estimation, fixed effect	FDI flows (stocks) excluding cross-border M&A	1995-2003 14 host countries	Unit labour cost	Negative Significant	SEE
Murgasova (2005)	Panel estimation, fixed effect specification	Real investment outlays	1995-2003 11 Polish sectors	Unit labour cost	Negative Insignificant	Poland
Cieslik (2005)	Negative binomial model	Number of firms	1993-1998 49 Polish regions	Gross wage	Negative Significant	Poland

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Pusterla and Resmini (2005)	Nested logit model	Firm-level data on manufacturing FDI in industries	1995-2001 Host: Hu, Pol, Ro, Bu	Gross wage	Negative Significant	CEE
Defever (2006)	Conditional logit model	Firm-level data	1997-2002 Host: EU15 & CEE8	Gross wage	Negative Significant	EU15 & CEE8
Johnson (2006)	Panel estimation, fixed effect	FDI inflows	1993-2003 25 host countries Subsample 13 CEECs	Unit labour cost	Insignificant	CEE
Kinoshita and Campos (2006)	Panel estimation, fixed effect specification and GMM	Per capita FDI stock	1990-1998 Host: 25	Gross wage	Negative Significant	CEE and CIS

Source: Own elaboration

2.3 Trade openness

There is a vast literature analysing the impact of trade on FDI (Culem, 1988; Jun and Singh, 1996; Lansbury *et al.*, 1996; Holland and Pain, 1998; Resmini, 1999; Pistoresi, 2000; Galego *et al.*, 2004; Botrić and Šuflić, 2005; Aizenman and Noy, 2005 and Blonigen, 2005).

There are two views in what concerns the relation between FDI and trade. One considers that horizontal FDI[6] substitutes trade (Buckley and Casson, 1981; Markusen, 1984, Horstman and Markusen, 1992). According to Buckley and Casson (1981) MNEs, in order to avoid high fixed and transportation costs (when exporting) and trade barriers, prefer to invest and substitute exports. Providing the same market with a direct sale from a subsidiary, the above mentioned costs are lowered but the fixed costs involved increase. Once the host market is large enough to obtain economies of scale, MNEs tend to progress from exports to FDI (Blonigen, 2005). Such evidence was found for the Japanese companies that entered the US market (Head *et al.*, 1994; Blonigen, 2005).

The other view considers that FDI complements trade. Vertical FDI[7] divides the production process into stages and each stage is located in the country that has the best locational attributes. Each plant exports the intermediate product to other plants; hence vertical FDI complements trade (Helpman and Krugman, 1985).

However, the sourcing strategies and the integration strategies of multinationals became more complex. MNEs invest sometimes in low-cost countries in order to establish export platforms to supply other locations around the world.

In empirical research, openness to trade is often expressed as the ratio of trade (imports plus exports) to GDP, by the import tariffs of the host country or by using dummy variables for trade agreements. There is mixed evidence concerning the significance of trade openness as a FDI determinant. Most studies confirm the hypothesis that FDI is more oriented to tradable sectors, a country's degree of openness to international trade being thus important

[6] *Horizontal FDI* seeks to serve the host market. MNEs duplicate companies that already exist in the home country or other location. This type of investment replaces usually the exports or the licensing. (Uppenberg and Ries, 2004)

[7] *Vertical FDI* consists of internalisation of a production chain within MNEs; different stages of production are located in different countries in function of the comparative advantage of each country. (Uppenberg and Ries, 2004)

(Culem, 1988; Jun and Singh, 1996; Lansbury *et al.*, 1996; Holland and Pain, 1998; Resmini, 1999; Pistoresi, 2000; Galego *et al.*, 2004; Botrić and Šuflić, 2005). Schmitz and Bieri (1972) found openness to be insignificant; in turn, Wheeler and Mody (1992) stated a weak link for the electronics industry.

Chakrabarti (2001), while questioning the robustness of various FDI determinants, concluded that the correlation between trade openness and FDI is robust to changes in the conditioning information set. Singh and Jun (1995) stated that export orientation is one of the strongest FDI determinants but at the same supported the tariff jumping hypothesis, what seems to contradict their first conclusion.

In the context of CEECs, the literature analysed reveals a positive correlation between FDI and trade openness. The main findings are summarised in Table 2.4.

Lansbury *et al*. (1996) – when studying the main motivations of fourteen OECD countries to invest in three CEECs between 1991-1993- obtained evidence that investments are more likely to originate from countries with strong existing trade linkages with CEECs. Also, the authors consider that this would have implications upon the pattern of investment in the region as the trade is progressively more oriented towards the EU.

The same idea is expressed by Fontagné (1999) that, in his empirical analyses reached the conclusion that the cause-effect relationship appears to have been inverted; if before mid-1980s openness to trade generated direct investment, there is evidence that direct investment now generates trade. Jun and Singh (1996), when analysing FDI determinants in 39 countries between 1970-1993, found exports to be a significant determinant in 'high FDI countries'[8] but less significant for 'low FDI countries'; they performed also a causality test between exports and FDI indicating that there is a dynamic relationship between them.

In the same line with Lansbury *et al.* (1996) in their panel data analysis of FDI determinants in 11 CEECs detected that past trade linkages have a significant impact on the level of inward investment.

Resmini (1999), in a sectoral analysis carried out for ten CEECs, found a positive correlation between trade openness and FDI. She concluded that the European investors

[8] Jun and Singh (1996) consider as high FDI countries China, Mexico, Portugal, Spain, Egypt, Greece, Malaysia, Thailand

have been attracted by the possibility of reducing production costs, mostly labour costs especially as they were intending to export.

Campos and Kinoshita (2002), in their attempt to test the most relevant indicators for transition economies, used a panel data of twenty five countries for the period 1990-1998. Their results showed that trade openness is an important attractor for the less developed of the transition countries (CIS), but less relevant for the more developed ones.

Most findings indicate that investors prefer countries with liberal trade regimes, located eventually in regions with national free-trade arrangements. Previous linkages with host markets would help especially small and medium sized companies to take advantage of the opportunities offered by a developing market structure (Bod, 1997; Holland and Pain, 1998). Part of the investments could be in marketing subsidiaries established to support exports by parent companies (Lansbury, 1996; Lankes and Venables, 1996).

There are several reasons for which trade openness would help to attract FDI. Investors know better the local markets if they had previously trade relations in that location. Knowing better the local market increases the chances to take advantage of the investment opportunities that appear; especially in a developing market where the information asymmetry is bigger.

A country that has a higher degree of openness tends to be more competitive at an international level, and might indicate the existence of a higher productivity, competitive products and a more liberal trade regime.

Also, once "exports to a foreign market reach a certain threshold, foreign production costs, trade barriers and especially scale economies at the plant level may be such that it is more advantageous to supply the market from a local production unit" (Culem, 1988: 900).

Based on the literature review, and an own view regarding the theme the following hypothesis is tested:

Hypothesis 3

Inward FDI is positively influenced by openness to trade.

Table 2.4: Summary of empirical studies on FDI including openness to trade as a determinant

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Schmitz and Bieri (1972)	Least squares regression	Share of US direct investment in EEC	1952-1966 Host countries: EEC	Annual EEC share of USA exports	Insignificant	EEC
Culem (1988)	Generalised least squares	Share of FDI flows in the US GNP	1969-1982	Exports from source to host country divided by nominal GDP of source country , lagged one period	Positive Significant	EEC
	Generalised least squares		Host countries: 5 EEC			
	Generalised least squares	FDI bilateral flows	6 countries	Exports from source to host country divided by nominal GDP of source country , lagged one period	Positive Significant	EEC plus US
Wheeler and Mody (1992)	Panel estimation, fixed effects	FDI in country "i" relative to FDI in some comparison country 'j"	1982-1988 Host countries: 42	Composite variable	Insignificant	
Jun and Singh (1996)	Pooled cross country and time series model	FDI stocks	1970-1993 Host countries: 31	Exports	Positive Significant	
Lansbury *et al.* (1996)	Panel estimation, no specific country effects	FDI bilateral flows	1991-1993 3 host countries, 14 investing countries	Host imports plus exports accounted for by the trade with the investing country	Positive Significant	CEE
Holland and Pain (1998)	Panel data	FDI inflows/GDP	1992-1996 11 host countries	Host imports plus exports accounted for by the trade with EU	Positive Significant	CEE
Resmini (1999)	Panel data, generalised least squares at sector level	FDI stocks	1990-1995 10 host countries	Ratio of trade over GDP	Positive Significant	CEE
Akinkugbe (2003)	Probit estimation	FDI/GDP	1970-2000; five years averages for all variables Host countries: 89 developing countries	Ratio of trade over GDP	Positive Significant	
	Panel data, random effects		Host countries: 71 developing countries		Positive Significant	

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Addison and Heshmati (2003)	Pooled ordinary least squares	FDI/GDP	1992-1999 Host countries: 39	Ratio of trade over GDP	Positive Significant	
Galego *et al.* (2004)	Panel estimation, generalised least squares	FDI bilateral flows	1993-1999 Host countries: 27	Ratio of trade over GDP	Positive, Significant	CEE
Botrić and Šuflić (2005)	Generalised least squares	FDI inflows	1996-2002 Host countries: 7	Ratio of trade over GDP	Positive, Significant	SEE
Brada *et al.* (2003)	Panel estimation, generalised least squares	FDI inflows	1993-2001 Host countries: 7	Ratio of trade over GDP	Positive, Significant	CEE
Kinoshita and Campos (2002)	Panel estimation, fixed effects and GMM	Per capita FDI stock	1990-1998	Trade liberalisation index	Positive, Significant	CEE
			Host countries: 25	Trade dependence as share of GDP	Insignificant	
Kinoshita and Campos (2002)	Panel estimation, fixed effects and GMM	Per capita FDI stock	1990-1998	Trade liberalisation index	Positive, Significant	CIS
			Host countries: 25	Trade dependence as share of GDP	Positive, Significant	

Source: Own elaboration

2.4 Privatisation

Privatisation is the transfer of ownership rights of state-owned enterprise to the private sector representing the process through which the liberalisation of the market is made. It was often argued that privatisation has a political dimension especially because it is strongly related to the government credibility and its ability of influencing the investors' willingness to pay (Bortolotti *et al*., 2003). However, extant literature provided evidence that privatisation improves the financial and operating performance of the companies (D'Souza and Megginson, 1999; Dewenter and Malatesta, 2001; Bortolotti *et al*, 2003).
Related to FDI, privatisation is a special case of acquisition and has two aspects: an FDI-policy dimension and a competition-policy dimension. If privatisation welcomes foreign investors, it broadens the scope of FDI (UNCTAD, 2003).

In the explored empirical studies that investigated the relation between privatisation and FDI, privatisation was mainly analysed from three points of view: privatisation method, privatisation timing and privatisation intensity.
The *privatisation method* (voucher, direct sales or management buy-out)[9] reflects the privatisation policy - the voucher and management buy-out schemes are considered to offer fewer opportunities to foreign investors (Holland and Pain, 1998).
Privatisation intensity is measured by the proceeds from privatisation as a share of GDP. The proceeds from privatisation cover all sales of public assets to private entities through public offers, direct sales, management and employee buyouts, concessions or licensing agreements, and joint ventures (World Bank, 2001).
Different countries applied large–scale privatisation programs, including developed economies as France and the UK, as well as developing ones (Mexico, China, and Brazil).

[9] *Voucher privatisation* or mass privatisation - occurs when a substantial portion of an economy's public assets is transferred to a large group of private buyers. Usually, this is made through public distribution of shares to citizens, either for free or a minimum charge. (Estrin, 1996)
Sale To Outside Owners or Direct sales is the transfer of ownership and control to private investors whose expertise ought to guarantee a successful performance of the firm in a competitive environment. (Estrin, 1996)
Management Buy Out (MBO). When the managers and/or executives of a company purchase controlling interest in a company from existing shareholders. (Estrin, 1996)

For the last two decades, the most ambitious programs were carried out in the transition economies of CEE.

One of the key determinants of the FDI level in CEECs that offers strong incentives for location of strategic investments is privatisation (Lansbury, 1996; Holland and Pain, 1998). Privatisation represented 60 percent of all FDI inflows to CEE during 1991-1993 (UNCTAD, 1995), a year later accounting for only 18 percent of them (UNCTAD, 1996).
The timing of the privatisation process and the privatisation form appeared to be the primary determinants of the allocation of FDI in CEEC (Lansbury *et al.*, 1996; Meyer, 1998; Lankes and Venables, 1996; Bevan and Estrin, 2000).
The method of privatisation was found by several studies to be a significant variable. Direct privatisation through cash sales attracted higher inward investments than the one realised through voucher schemes (Holland and Pain, 1998).
Holland and Pain (1998) run a panel date for the period 1992-1996 using data from ten accession countries plus Croatia. They found the method of privatisation to be particularly important with a positive sign signifying that the countries that applied the cash sales method have attracted more inflows than the countries that used voucher privatisation (on average in the first group of countries inflows of FDI relative to GDP are 1,74 percent points higher than the inflows of countries that applied voucher method). The method of privatisation appeared to be a more important FDI determinant than the private sector share, another usual proxy.
Lansbury *et al*. (1996) used as a proxy for privatisation the private sector the share of GDP, and found it statistically significant and positive for all CEECs analysed supporting the idea that, in short term, the strength of investment in these economies is possible to strongly depend on the privatisation programmes. Their results suggested also that the privatisation timing is very important. Indeed, the Višegrad countries[10], the first ones in the area that implemented privatisation programmes, attracted larger amounts of FDI compared to the other CEECs.

[10] The Višegrad Group is and alliance of four countries (Czech Republic, Poland, Hungary and Slovakia) created in 1991 for the purpose and furthering their European integration (Source : http://visegradgroup.eu/main.php)

Privatisation is seen also as a component of the perceived risk of the host country. Altomonte (1998) and Bevan and Estrin (2000) used the private sector share of the host country to estimate country risk. Carstensen and Toubal (2004) considered the method and level of privatisation closely correlated to the effectiveness of corporate governance.

Regarding the timing of privatisation, Lansbury *et al*. (1996) found that Višegrad countries, where the timing of privatisation was rapidly made, attracted more FDI compared to other CEECs.

Merlevede and Schoors (2004) after running a panel data for CEECs, reached the conclusion that the relation between FDI and privatisation is more complex. They found that non-direct methods of privatisation determined the locals to own the companies while direct privatisation had an immediate positive effect.

Employing a dynamic panel data to determine the factors that attracted FDI to CEE, Carstensen and Toubal (2004) concluded that the decision to invest in CEE relied heavily on the level and method of privatisation. The low direct investments registered in Romania and Bulgaria were justified by the inadequate privatisation laws that did not encourage sales to outside owners. The same positive influence but with a lower correlation was found by Bellak and Leibrecht (2005).

It may then be expected that privatisation has a positive influence on FDI flows. This positive relation between FDI and privatisation revenues is grounded on several arguments such as the fact that a higher degree of privatisation involves more investment opportunities, offers the first-mover advantage, promotes competition, improves delivery of public services and infrastructure and facilitates the transition to a market economy.

"A great part of FDI has been undertaken in the framework of privatisation of state-owned enterprises (Lansbury *et al.* 1996) and hence there are fears that the growth of FDI in Central Europe may slow as privatisation programmes run out of steam" (Agarwal, 1997: 100). These arguments lead us to posit the following hypothesis:

Hypothesis 4

Inward FDI is positively influenced by privatisation.

Table 2.5: Summary of empirical paper on FDI determinants including privatisation

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Lansbury *et al.* (1996)	Panel estimation, no country specific effects	FDI bilateral flows in percentage of total OECD flows	1991-1993 Host countries: 3 Home Countries: 14	Share of private sector in GDP	Positive Significant	CEE
Holland and Pain (1998)	Panel data	FDI inflows/GDP	1992-1996 11 host countries	Privatisation method -dummy variable	Positive Significant	CEE
Carstensen and Toubal (2004)	Dynamic panel data, GMM	Bilateral FDI flows	1993-1999 7 host countries 10 home countries	Share of private sector in GDP Privatisation method -dummy variable	Positive Significant Positive Significant	CEE
Merlevede and Schoors (2004)	Panel estimation, 3SLS	Share of a specific host country in total FDI flows to transition countries	1992-2002 Host countries: 25	Privatisation method -dummy variable	Positive Significant	Transition countries; subsample 13 CEE
Bellak and Leibrecht (2005)	Panel data, random effects	Bilateral FDI flows	1995-2003 8 host countries 7 home countries	Privatisation revenues	Positive Significant	CEE
Gani (2005)	Panel corrected standard errors model	FDI inflows/GDP	1990-1999 17 host countries	Privatisaton proceeds per GDP	Positive Significant	Latin America; Asia

Source: Own elaboration

2.5 Agglomeration indicators

Recent literature on FDI (Barrell and Pain, 1999; Basile *et al*., 2003; Fujita and Krugman, 2004; Kinoshita and Campos, 2006) suggests that firms tend to localise in industrial agglomerations. Agglomeration offers several benefits and among the most important are: access to a more stable labour market, a better infrastructure, availability of intermediate goods, production services, skilled labour and knowledge spillovers between adjoining firms.

As explained in the first chapter, there are two types of agglomeration-related economies: localisation economies (that appear within the same industry) and urbanisation economies (that appear at the regional level). To analyse the effect of localisation economies upon FDI, proxies as the number of plants in the same industry in the same region, number of firms in the same region controlled by the same parent firm and R&D indicators were used (Head *et al*. 1994a, 1994b, 1998; Basile *et al*., 2003 and Hilbert and Voicu, 2006).

The infrastructure determinants might indicate the existence of urban agglomerations; among the proxies employed in the literature are density of roads, number of phones and number of internet users per number of inhabitants and others (Wheeler and Mody, 1992; Choi, 2002; Botrić and Šuflić, 2005; Kinoshita and Campos, 2006). A summary of the papers consulted is presented in Table 2.6.

Head *et al*. (1994a), using data on Japanese investments in the US for the period 1979-1987 estimated the effects of four types of agglomeration variables on the location choice (number of establishments in same 4-digit level SIC, number of plants operating in same 4-digit level SIC in the year before investment began its activity, number of establishments in same manufacturer-led keiretsu and the border state activity). They found that the Japanese investment has a follow-the-leader pattern and that the location of the Japanese investments is significantly influenced by the location of previous Japanese investments in the same industry or keiretsu. In case the countries of origin effects are missing, it resulted that the Japanese firms locate in regions where there are a relatively large number of US establishments in the same area of activity. Furthermore, they suggest that neither natural resources, nor specialised labour, drive location choice by themselves.

Agglomeration theory asserts that investment in interconnected industries is self-reinforcing but there is no assumption concerning the location choice of the first investor.

Head *et al*. (1994b) carried on another study by using a different data set (1980–1992) and new proxies (labour market conditions, proximity to markets, state investment-promotion policies and agglomeration variables). This time they try to call attention to the impact of state governments' incentives upon location choices of Japanese investors in the United States. They found that governmental promotion efforts influenced significantly the Japanese investments from a location point of view. The variable with the most significant impact was labour subsidies. The simulation led to another noteworthy result, by competing and creating at least one foreign trade zone, the states diminished the advantage of one state over another. They asserted that the inter-country competition might lead to a smaller welfare compared to the one that could have been obtained in the absence of the governmental promotional programs. Head *et al*. (1999) reinforced these ideas by using an improved econometric model and introducing some new proxies for the same variables.

Wheeler and Mody (1992) confirmed the relevance of agglomeration for FDI location using qualitative data (infrastructure quality). Barrell and Pain (1999) using an industry–level panel data set (six EU countries from 1978 to 1994) obtained significant positive effect from both agglomeration variables used. They reached the conclusion that labour costs are not as important as they were once, particularly for companies that perform with high technology. "Contiguity to major centres of production and research is now equally, if not more, important" (p. 931).

The importance of agglomeration economies is confirmed also by Basile *et al*. (2003). They modelled location choices as an outcome of profit maximization using a data set for 5761 plants located in eight EU countries. After testing the influence of overall agglomerations (expressed by the log of the number of manufacturing plants in the same industry), foreign firms' agglomeration (expressed by the log number of foreign-owned firms within one region and sector) and MNEs experience (expressed by log of number of firm in the same region controlled by the same parent company), they concluded that the profit that a MNE receives from a given region is positively correlated with the number of subsidiaries of the same parent in the same region. Experience gained in a certain context increases MNEs

ability to obtain profit from that location and creates incentives to establish in the same location.

Lansbury *et al*. (1996) when investigating the main FDI determinants in three CEECs, obtained evidence that infrastructure has a positive influence upon FDI location even though it was not one of the most influent determinants. Resmini (1999), in her analysis of EU FDI flows into CEE at a sector level, found that an increase in the concentration of the manufacturing sector reduces the FDI stocks. The negative reaction could be explained by a large dispersion of the foreign economic activities in the region.

Disdier and Mayer (2003), in their attempt to determine whether the motivations of location decisions by foreign investors in Eastern Europe are similar to those explaining the location choice in Western Europe, use information about individual firm location choices over a set of nineteen EU and CEE economies. The results revealed that the presence of agglomeration effects influences positively the location decision of the French companies, but these effects are less strong in CEE than in EU countries. A possible explanation consisted in the existence of a stronger competition between the firms in CEE, fact that generates a dispersion of economic activities.

Hilbert and Voicu (2006), applying a country level logit set-up for Romania, found that among the most important location determinants are the external economies from industry specific fixed assets, as well as endowment effects[11]. The simulation revealed that an increase in the number of foreign plants in a certain industry and the increase in service employment density determine an increase the location's FDI attractiveness.

Using the model proposed by Cheng and Kwan (2000) for twenty-five transition economies between 1990 and 1998, Campos and Kinoshita (2003) reached the conclusion that the main determinants of FDI in transition are agglomeration, the degree of liberalisation and the quality of the bureaucracy.

An important factor that might affect the concentration of economic activity is the existence of modern infrastructure (Fujita and Thisse, 2002).

[11] Endowment effects is a hypothesis that people value more what they have relative to what they do not have (Dalton, 2003) and in this specific case "represent an alternative mechanism through which localization can arise" (Hilbert and Voicu 2006: 5)

ICT (information and communication technology) is considered to be key determinant of FDI (Gholami *et al.*, 2005). Economies equipped with essential ICT infrastructure have been moving towards an information-based economy that breaks some of the geographic limitations. Internet penetration and other ICT indicators embody the infrastructure aspect but at the same time they include an indication of skills and productivity, transfer of technology and reduced transition costs. UNCTAD (2001) acknowledges that, although the Internet penetration increases the mobility of MNEs, they have the tendency to concentrate geographically because of agglomeration effects.

Choi (2003), using bilateral FDI data from 14 countries to 53 host countries, found that an increase in the number of internet hosts or users determines an increase in the FDI inflows. This author suggested that the progress of the Internet will contribute to the worldwide increase in cross-border FDI.

Ko (2007) presented a two-stage game in order to demonstrate that positive/negative network externalities (measured as the ratio of number of Internet users to the total population) are associated with the Internet penetration encourage/discourage FDI. A negative correlation between FDI and Internet penetration was found for the developing countries and justified by the fact that the augment in Internet use increased MNEs' costs. In the case of developed countries were registered positive externalities were registered, hence an increase in Internet use determined an increase in the FDI stocks.

Gholami *et al.* (2005) in their panel data estimation for 23 developed and developing countries concluded that the availability of advanced infrastructure is an essential concern in decisions on investment location for foreign investors. Their estimation results show a positive relation between ICT and FDI, especially in the case of the new industrialised countries as Singapore, South Africa, Malaysia and India.

Other authors found out that the lack of communication technology is an inhibiting factor for economic growth in less developed countries (Matambalya and Wolf, 2001; Addison and Heshmati, 2003).

Mody's (1997) survey of international firms in Hong Kong, Singapore and Taiwan showed that advanced infrastructure was one of the most important considerations for MNEs in choosing the location of regional headquarters, services and sourcing operations.

The role of infrastructure and services in attracting foreign investments was illustrated by various authors. It had driven the internationalisation processes of many service companies, particularly in activities that imply a close relationship between supplier and client, on the basis of a "follow-the-customer" model (Kindleberger, 1983; Mariotti and Piscitello, 1995). Based on all the evidence reviewed and on the theoretical background (OLI paradigm – location advantages, internalisation, and agglomeration) we posit the subsequent hypothesis:

Hypothesis 5

Inward FDI is positively influenced by agglomeration.

Table 2.6: Summary of empirical studies on FDI including agglomeration economies and infrastructure indicators

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Head *et al.* (1994b)	Conditional logit model	Location choice	1980-1992 34 states	A count of US establishments A count of Japanese establishments A count of keiretsu affiliates	Positive Significant	US
Wheeler and Mody (1992)	Panel estimation, fixed effects	FDI in country "i" relative to FDI in some comparison country 'j"	1982-1988 Host countries: 42	Infrastructure quality Manufacturing/mining as percent of GDP Level of FDI	Positive Significant	
Lansbury *et al.* (1996)	Panel estimation, no country specific effects	FDI flows	1991-1993 Host countries: 3 Home Countries: 14	Electricity consumption per capita	Positive Significant	CEE
Barrel and Pain (1999)	Panel estimation, fixed effects	FDI stock	1978-1994 Host countries: 6 EU	Relative scale of production; the relative size of the research base	Positive Significant	EEC
Resmini (1999)	Panel data, generalise least squares at sector level	FDI stocks	1990-1995 Host countries: 10	Proportion of manufacturing sector in total GDP	Negative Significant	CEE
Choi (2003)	OLS and generalised least squares Tobit	Average of FDI between 1994-1996	1995 Host countries: 53 Home countries: 14	Number of internet users per country Number of internet hosts per country	Positive Significant	
Akinkubke (2003)	Panel estimation, random effects and probit estimation	FDI flows/GDP	Host countries: 71	Phones per 1000 inhabitants	Positive Significant	
Basile *et al.* (2003)	Nested Logit model	Profit	1991-1999 Host countries: 8 EU countries -5761 plants in 51 regions	Log of number of manufacturing plants in same industry in same region Log of number of foreign-owned firms within same region and industry Log of the number of firms in the same region controlled by the same parent firm	Positive Significant	EU
Disdier and Mayer (2003)	Conditional logit model	Location choice	1980-1999 Host countries:13 EU countries and 6 CEEC -1843 location decisions	Sum of one plus the cumulated number of home firms of the same industry located in the country the year before the location decision of a new firm	Positive significant for both EU and CEEC but less strong in CEEC	EU and CEE

Authors	Estimation technique	Dependent variable	Sample	Proxy	Effect	Location
Kinoshita and Campos (2002)	Panel estimation, fixed effects and GMM	Per capita FDI stock	1990-1998	Number of telephone lines per 1000 people	Insignificant	CEE
			Host countries: 25	One year lagged dependent variable	Positive Significant	
	Panel estimation, fixed effects and GMM	Per capita FDI stock	1990-1998	Number of telephone lines per 1000 people	Positive Significant	CIS
			Host countries: 25	One year lagged dependent variable	Insignificant	
Botrić and Šuflić (2005)	Panel estimation, generalised least squares	FDI inflows	1996-2002 Host countries: 7	Number of Internet connections	Positive Significant	SEE
Ciešlik (2005)	Negative binomial model	Number of firms	1993-1998 49 Polish regions	Regional GDP value	Insignificant	Poland
				Urban population as percentage of total population	Positive Significant	
				Industry employment of total employment		
				Service employment of total employment		
				Telephone lines per 100000 inhabitants		
Gholami *et al.* (2005)	Panel estimation, 2SLS	FDI inflows/GDP	1976-1999 Host countries: 23	ICT investment	Positive Significant	
Moosa and Cardak (2006)	Extreme bounds analysis	FDI/GDP	1998-2000 Host countries: 138	Telephone lines per 1000 inhabitants	Positive Significant	
Ko (2007)	Panel estimation, fixed effects	FDI stocks	1995-2002 Host countries: 30	Number of internet users per country	Positive Significant	Developed countries (Slovenia included)
	Panel estimation, fixed effects	FDI stocks	1995-2002 Host countries: 106	Number of internet users per country	Negative Significant	Developing countries (including the CEE)

Source: Own elaboration

3 Empirical investigation

3.1 Overview

This chapter is the empirical core of the dissertation and it presents the econometric specification of the models used to test the hypotheses, the estimation strategy and a potential explanation of the empirical results obtained. The main objective is to test which factors affected FDI location in CEE. In the previous chapters, by reviewing the theoretical and empirical background of FDI location determinants, the potential motivations for investing in CEECs were brought into attention. This section presents the proxies for the variables described in Chapter 2 and assigns their expected sign based on the previously discussed hypotheses. In order to test the impact of the selected variables (market, labour costs, privatisation, degree of openness, infrastructure and industrial concentration), a random effects model is employed to an unbalanced panel of relevant data.

3.2 Data and empirical context

The determinants underlying FDI location decisions can be analysed using firm-level or macro data. Typically there are two approaches: the first approach implies the regression of the probability of locating the investment in a specific location based on different location-specific determinants this involving the use of firm-level data; the second approach uses the amount of FDI as a dependent variable, and a more macro-based analysis is made. The choice between the two approaches is conditioned by data availability, as well as by the specific aims of the research.

Most empirical studies run the analysis at an aggregate level, even if different authors suggest that not all questions regarding the FDI location can be answered on the basis of aggregate data (Buch *et al.*, 2004; Resmini, 1999).

The goal of this dissertation is to test some of the factors that led multinationals to choose Central and Eastern Europe as a location for their investments. The research is based on data for ten host countries over a period of twelve years. As no published firm-level datasets are available and as the multiple country setting made not viable a survey, macro-level data is used.

The choice of host countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia) was determined by the amount of FDI stocks accumulated after 1989, by the market size as well as by the availability of data. Intentionally, Russia and other satellite states of the Former Soviet Union were excluded as their situation represents special cases that require detailed country-specific explanations. Most econometric studies analysed the Višegrad economies. This study includes more distant markets that should separate any effects determined by very close proximity to the European Union.

The time period considered is restricted by the research objective as well as by the data availability. FDI location in CEE after the fall of the Iron Curtain (1989) is analysed. Among the countries used in the study are the Czech Republic and Slovakia, that appeared in 1993, when Czechoslovakia split into the two states. Hence, available data for the two countries may be found only from 1993.

3.2.1 Proxies for the relevant variables

3.2.1.1 Dependent variable Inward FDI stock

The present study uses inward FDI stock (expressed in millions of US dollars) as a dependent variable for the ten transition countries considered for the years 1993 to 2004.

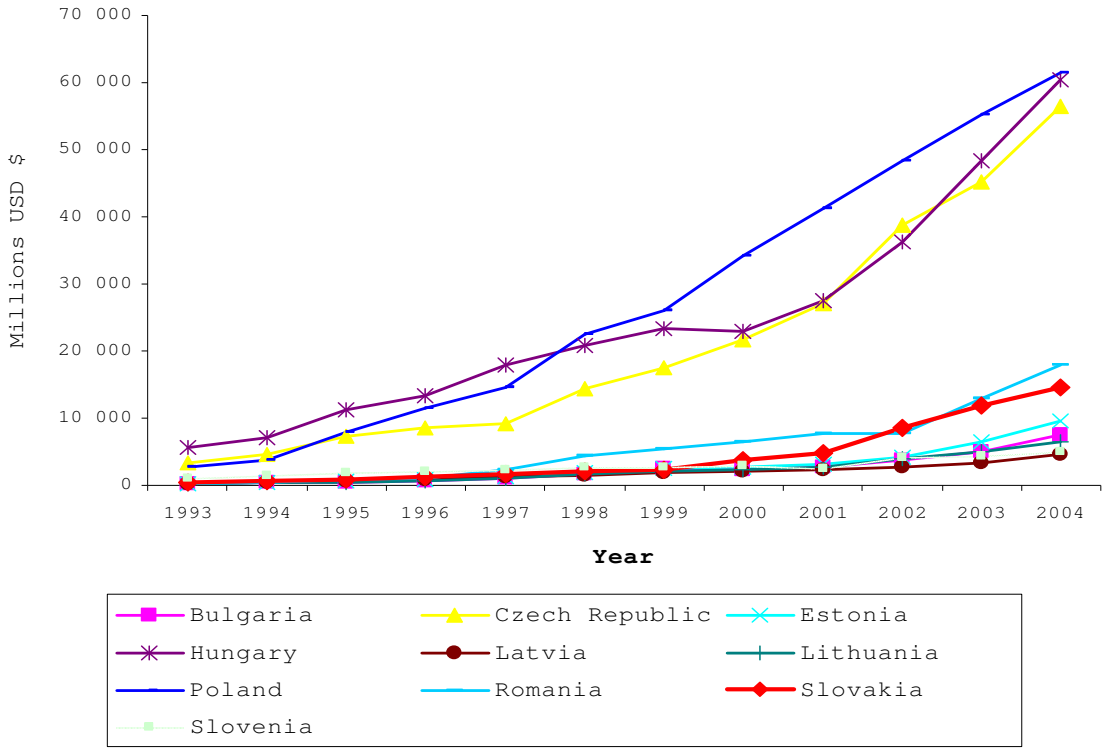
FDI measures used in the relevant literature are mainly FDI flows and FDI stocks. In the absence of direct measures, international production (defined as production under foreign ownership) is more appropriately measured at national level by outward and inward FDI stocks (Bellak and Cantwell, 2004).

FDI stocks are calculated by considering the accumulated flows taken from the annual balance of payments (annual differences in stocks equals the flows) or represent book values (annual flows from the balance of payments may be larger or smaller than differences in annual stocks) (Bellak *et al.*, 2006; Eurostat, 2006).

FDI stock is the value of the share of capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprise (UNCTAD, 2006). Data on FDI stocks is presented at book value or historical cost, the latter reflecting prices at the time when the investment was made.

FDI stocks are closer to measures of real activities than FDI flows, as they evaluate the capital stock which by definition in the simplified balance sheet includes real and financial assets (Bellak *et al.*, 2006). A limitation of the FDI inflows measures in CEECs is the fact that, in the early years of transition, reinvested profits were not considered in their calculation. There are however shortcomings in using FDI stocks when they are expressed in historical values. This can be especially misleading when there has been significant inflation in some countries but not in others (Mutti, 2003). This measure has, nevertheless, the advantage of including the local borrowing in the host country. The figure below (Figure 3.1) describes the evolution of FDI stocks in the countries under analysis.

Figure 3.1: FDI stocks in selected countries, 1993-2004



Source: Own elaboration based on data from UNCTAD (2005)

FDI stocks had an exponential evolution, yet from a small base; the annual growth rate for the entire period is 29%. FDI stocks are fairly concentrated in three countries (Poland, Czech Republic and Hungary), that account for more than three quarters of the total FDI. After 2001, Romania and Bulgaria received larger amounts of investment than they were before but they still lag behind the Višegrad countries.

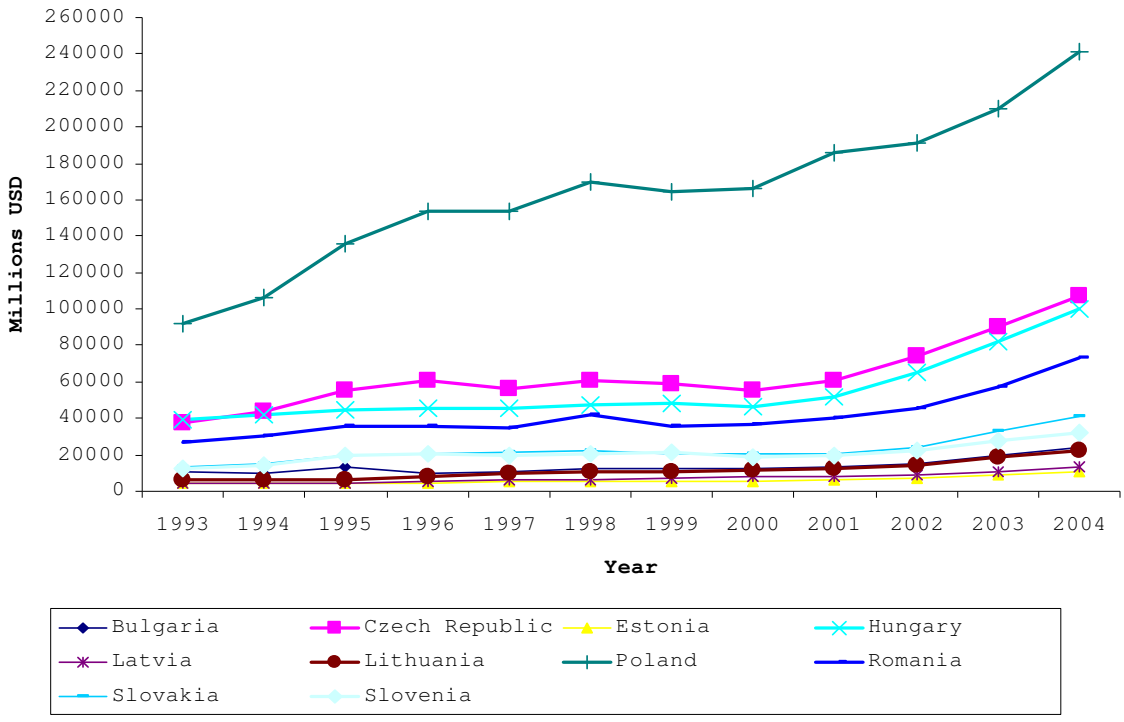
3.2.1.2 Independent variables

3.2.1.2.1 Market-related indicator

The market-seeking component of FDI is estimated by measuring the importance of the local market as a FDI determinant. Market-seeking investors are attracted by large or fast growing markets, usually estimated by population or income (UNCTAD, 2005). Population is thought to be a poor variable because it expresses nothing in terms of market growth which is an important characteristic for transition countries. Also, countries with a high GDP per capita but few consumers might not attract lots of investments. Hence, GDP was considered a better proxy for the potential demand of the local consumers.

GDP represents the market value of all final goods and services produced within a country in a given period of time (it is equal to total consumer, investment and government spending, plus the value of export, minus the value of imports) (World Bank, 2005).

Figure 3.2: GDP in selected countries, 1993-2004



Source: Own elaboration based on UNCTAD (2005)

Generally, CEECs registered an increase in GDP. Figure 3.2 indicates that Poland, Czech Republic, Hungary and Romania registered the highest volumes of GDP. Poland, despite a slowdown in the early 2000's, had one of the largest growths since the beginning of the transition period. The high GDP level in Poland is also justified by the fact that it is the largest market in CEEC. Romania, even if it is the second largest one, does not exceed the GDP level registered by Czech Republic and Hungary. The GDP in Slovenia and Slovakia had an exponential evolution, it underwent a short slump in the beginning of 2000 but recovered subsequently. Estonia, Lithuania and Latvia have the lowest GDP but they are also the smallest countries in the region.

3.2.1.2.2 Efficiency related indicator – labour costs

The cost of labour has a potential major effect upon the location decision, especially for multinationals that are looking to produce labour intensive goods and then export.

Based on the reviewed literature on Chapter 2 (Holland and Pain, 1998; Altomonte, 1998; Bevan and Estrin, 2000; Bevan *et al.*, 2004; Carstensen and Toubal, 2004; Leibrecht and Bellak, 2005 and Kinoshita and Campos, 2006) lower labour costs seem to matter. However, it is important to relate them to productivity (Bellak *et al.*, 2007). Lower labour costs usually mean lower productivity (Faucompret *et al.,* 1998). Different studies have shown that productivity in CEE is considerably inferior than that registered in Western Europe. Faucompret *et al.* (1998) made a survey among Belgian companies that located their production in CEEC and showed that 73% of them find productivity lower or much lower in that region when compared to the home country. An European project (RTD, 2007)[12] reveals significant productivity gaps between the EU-15 and CEE. Given such differences in productivity, total labour costs are thus not the most satisfactory measure for labour costs when analysing the investment decision in CEE. Hence, an adequate measure of labour costs shall capture labour productivity as well.

Following Leibrecht and Bellak (2005), unit labour costs are used as a proxy. Due to lack of data, it was not possible to compute the real unit labour costs that the mentioned authors considered in their panel, but the nominal indicator. The *unit labour costs* (ulc) are calculated through the following ratio:

[12] CEEC Productivity Gap Determinants Database, http://www.iwh-halle.de/projects/productivity-gap/field_work/Field_work.htm accessed on 26/08/2007.

$\frac{ACi \ / \ ESi}{GDPi \ / \ EPi}$, where:

- *ACi* is the annual compensation in the national host country and includes wages, salaries and employers' social contribution for residents as well as non-residents working for resident producer unit (AMECO, 2006); this indicator is expressed in thousands of millions euro;
- *ESi* is the number of employees in the host country, representing all persons who, by agreement, work for another resident institutional unit and receive remuneration (AMECO, 2006).

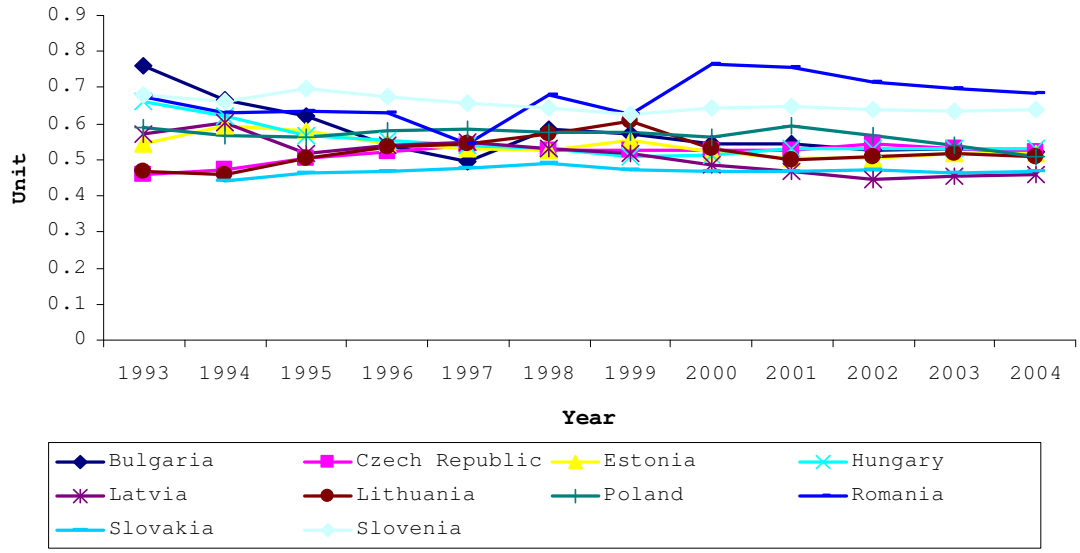
Labour productivity is captured by the denominator, itself a ratio.

- *GDPi* is the gross domestic product in the host country, expressed in thousands of millions euro.
- *EPi* represents employment in the host country expressed in number of persons; in employment are included residents as well as non-residents who work for resident producer units and covers employees and self-employed persons (AMECO, 2006).

The *unit labour cost* (ulc) is considered a direct relation between productivity and the cost of labour used in generating output. An increase in an economy's unit labour cost represents an increased compensation for labour contribution to output. A rise in labour costs higher than the rise in labour productivity may affect than an economy's cost competitiveness if other costs are not adjusted in order to compensate. The unit labour cost should be seen as a reflection of cost competitiveness (OECD, 2002).

Figure 3.3 illustrates that in the first years of transition the highest unit labour costs were registered in Bulgaria, Slovenia and Hungary. Romania and Slovenia are the countries that have the greatest unit labour costs within the entire analysed period; in the case of Romania the labour costs augmentation rhythm of increase is superior to that of GDP. The Czech Republic had a relatively linear evolution, its costs rising slightly in the first years of transition and then maintained at the same level.

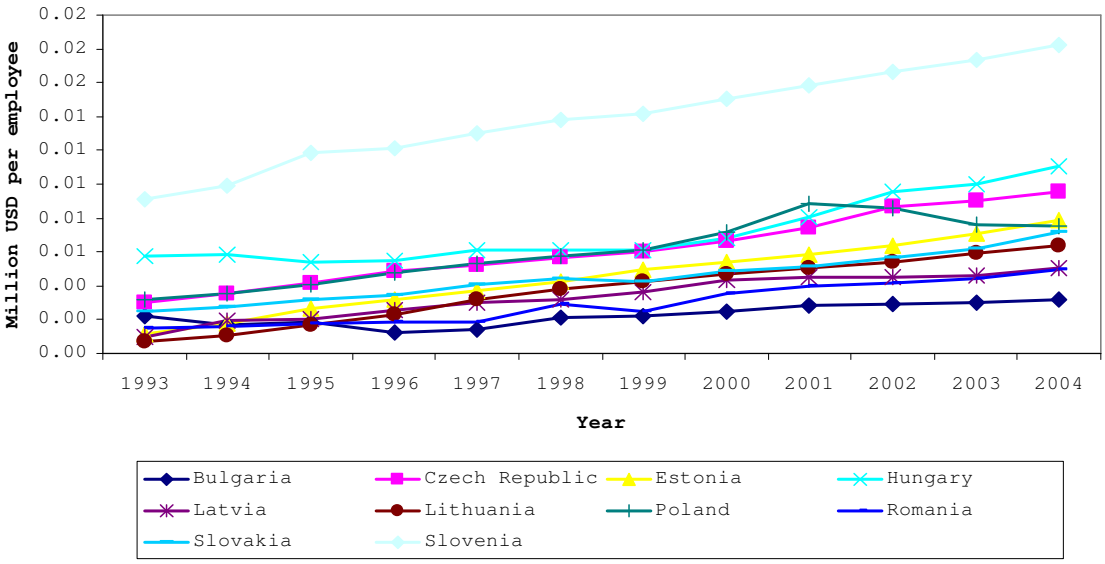
Figure 3.3: Unit labour cost in selected countries, 1993-2004



Source: Own elaboration based on AMECO database, 2007

The labour cost in absolute value is also employed in the analysis although, as already mentioned, an indicator which includes a productivity measure is a better approach. The influence of the *annual compensation per employee* is tested because absolute labour costs can be an appropriate measure of labour if the investor is able to transfer the productivity from the home to host country (Hinze, 1998).

Figure 3.4: Annual compensation per employee in selected countries, 1993-2004



Source: Own elaboration based on AMECO database, 2007

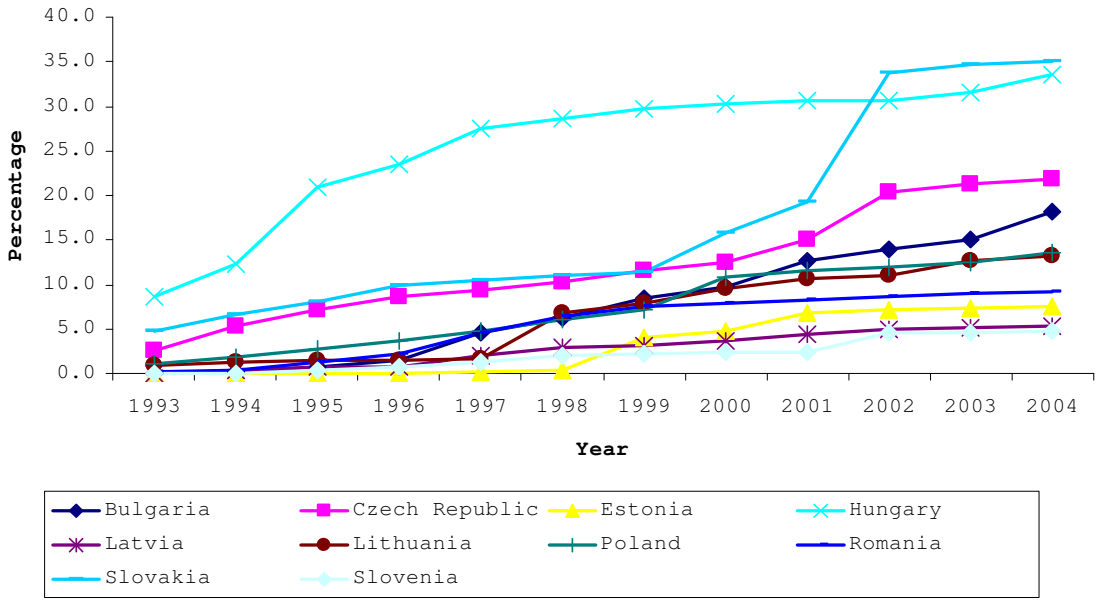
Annual compensation per employee (ace) is computed as the ratio between the annual compensation of all employees over the number of employees. It can be observed in Figure 3.4 that the highest labour costs are registered in Slovenia being followed by Hungary, Czech Republic and Poland, the three countries that received the largest amounts of inward FDI. The lowest labour costs occur in Bulgaria and Romania.
Based on labour in absolute values, it does not appear that FDI went primarily in countries with lower costs.

Figure 3.4 and Figure 3.3, it results that Romania and Bulgaria have the lowest productivity. Slovenia still has a high labour cost but because of the productivity the differential between it and the other countries diminished. The "front runners" (Czech Republic, Hungary and Poland) have high labour costs in absolute terms. When considering the productivity the differences between the countries are reduced.

3.2.1.2.3 Privatisation (privat)

Privatisation is a special case of acquisition, involving purchase of previously state-owned firms. The proxy used to test the privatisation effect upon FDI is annual privatisation revenues in percent of GDP.
Annual privatisation revenues in percent of GDP reflect the progress in privatisation. Such measure contains the government's revenues from cash sales of enterprises (EBRD, 2007). The typical used proxies are privatisation method and the index of private share in total economy. Privatisation method implies to use dummy variables that would decrease the degrees of freedom and a reason why this proxy was avoided. The index of private share has a little variation and might undervalue the privatisation progress. Thus, annual privatisation revenues are considered to be a better proxy.
Figure 3.5 shows the evolution of the cumulative privatisation revenues in analysed countries.
As illustrated, the highest percentage of privatisation revenues is held by Hungary, known for being the first country in the region that started privatisation and had a coherent programme. Hungary was closely followed by the Czech Republic and Slovakia. The other countries had a slow privatisation process that still has to be completed.

Figure 3.5: Privatisation revenues in selected countries, 1993-2004



Source: Own elaboration based on data from EBRD (2005).

3.2.1.2.4 Degree of openness to international trade

Openness to international trade along with access and distance to international markets are important especially in attracting the export-oriented FDI. In order to be able to function as a link in an international value added chain, a free and cost-efficient flow of intermediate goods is needed in both directions. A number of studies discussed in the previous chapter have suggested that a significant share of investments located in CEE were attracted by the possibility of diminishing production costs, especially the labour cost (Holland and Pain, 1998; Resmini, 1999).

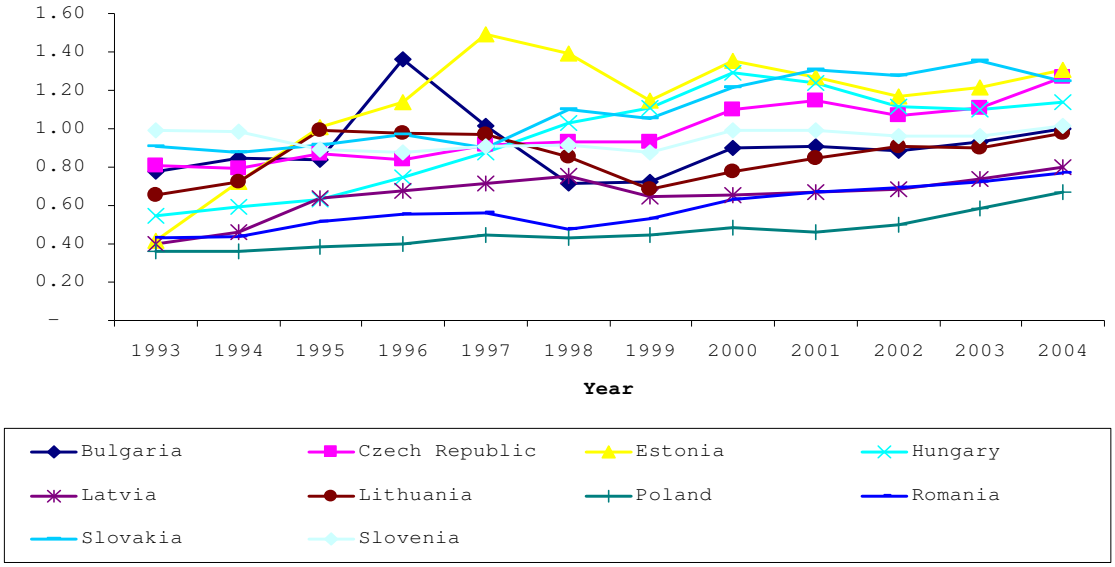
The proxy used to express the degree of openness indicator is trade openness. *Trade openness* (do) is measured by total trade of a country expressed as a percentage of GDP. A high value indicates a more open economy.

DO = (Imports + Exports) / GDP

Figure 3.6 illustrates the degree of openness for the analysed countries. The "less open" countries appear to be the largest markets in terms of population, Poland and Romania, even if in absolute terms (not expressed in percentage of GDP) these have among the

largest volume of trade. Estonia, Hungary, Slovakia and Czech Republic are more orientated to international trade.

Figure 3.6: Trade openness in selected countries, 1993-2004



Source: Own elaboration based on UNCTAD database (2005)

3.2.1.2.5 Agglomeration indicators: Internet Penetration and Industrial Concentration

Two proxies are used to assess the influence of agglomeration economies on FDI: annual internet penetration rate and the proportion of the manufacturing sector in total GDP.

The first proxy, an infrastructure indicator, can be a sign of the existence of urbanisation economies and show its effects upon FDI.

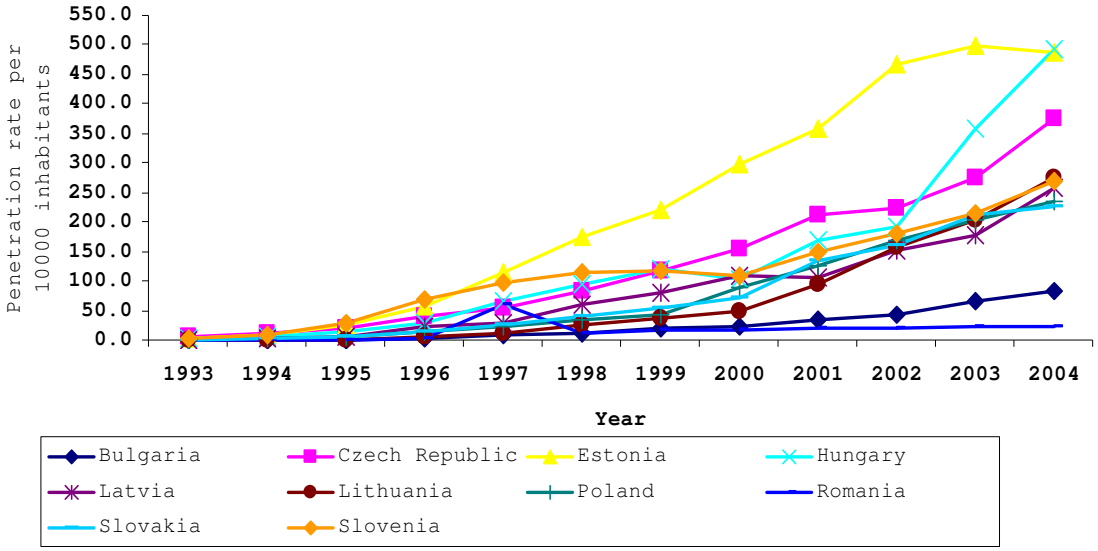
In the last decade, the potential use of ICT, especially the internet, as an instrument of change, and economic development and growth attracted considerable interest (Dunning, 2002; Brynjolfsson and Hitt, 2003)

The measure used in this dissertation is *annual internet penetration rate,* like in several studies (Choi, 2003; Botrić and Šuflić, 2005; Ko, 2007). Internet penetration rate is calculated as the number of internet hosts (number of computers directly linked to the worldwide Internet network) per 10,000 inhabitants (EBRD, 2005).

Figure 3.7 shows that Estonia, Czech Republic, Slovenia and Hungary have the most developed internet infrastructure. Romania and Bulgaria lag far behind. In a global ranking effectuated by the OECD, Estonia is ranked among the first countries in the world in what regards the internet and broadband penetration, taking over even the

United States (Levy, 2007; OECD, 2007).

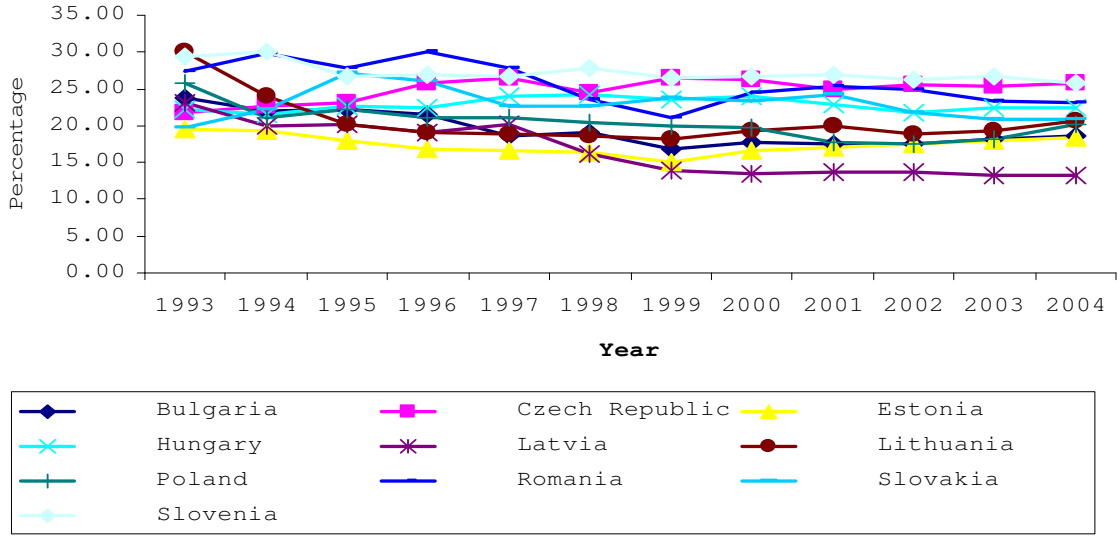
Figure 3.7: Internet penetration in selected countries, 1993-2004



Source: Own elaboration based on EBRD data (2007)

Following Resmini (1999), the percentage of manufacturing in GDP is used as a proxy for industrial concentration. A relative high industrial concentration indicates the existence of industrial agglomeration, which, as discussed before, it can be a strong incentive for investors. As illustrated in Figure 3.8, in the analysed CEECs, industrial concentration varied between 15 to 30 percent of GDP. The highest industrial concentration is registered in Romania, Slovenia and the Czech Republic.

Figure 3.8: Industrial concentration in selected countries, 1993-2004



Source: own elaboration based on UNCTAD database (2007)

3.2.1.3 Model's assumptions

The expected sign of the proxies was attributed having in consideration the hypotheses mentioned in Chapter 2.

In accordance with location theory, the empirical results reviewed and the market evolution in CEE, market-seeking is considered one of the most important motivations for FDI in this region. Hence, a positive relation is expected between GDP and FDI stocks.

The importance of labour costs when choosing FDI location in CEE should be relevant, especially for investments made in the so-called traditional sectors[13]. Considering the fact that one of the most important variables for efficiency-seeking is labour costs, and also the fact that CEEC offer relatively low labour costs, it is likely that both variables considered exert a negative influence upon FDI stocks. At the same time, by analysing the data it can be observed that the countries that have relatively high labour costs received bigger amounts of FDI, therefore it can be expected that the influence of labour costs is not significant.

Giving the magnitude of privatisation programs that took place in CEE and their importance for the transition to a liberal market, a positive correlation between privatisation revenues and FDI stocks it is expected.

The openness to trade has a positive influence upon FDI, especially if investors are interested in this location because of potential opportunities to lower production costs.

One of the hypotheses of the present research considers agglomeration to be a significant determinant of FDI attraction; hence a positive influence upon FDI is expected from both proxies used.

Table 3.1 summarises the proxies presented in this section and that are used in the model, specifying the source and their expected sign.

[13] Traditional sectors are those such as textile, apparel and footwear (UNCTAD 2006)

Table 3.1 Variables and their expected signs

	Proxy	Source	Variable	Hypothesis	Expected sign
Dependent Variable	FDI stocks (*stock*)	UNCTAD: World Investment Report 2005	FDI Inward Stock by host country expressed in millions of dollars		
Independent Variables	GDP (*gdp*)	UNCTAD: World Investment Report 2005	Market related variable - home country size expressed as GDP in millions of dollars	H1	+
	Unit Labour Cost (*ulc*)	Own calculation based on data taken from AMECO	The ratio between compensation of employees per number of employees and GDP per employment	H2	-
	Annual compensation per employee (*ace*)	Own calculation based on raw data taken from AMECO	The ratio between compensation of employees per number of employees	H2	-
	Trade openness *(do)*	Own calculation based on raw data taken from UNCTAD 2005	Trade openness calculated as the sum of imports plus exports divided by GDP	H3	+
	Privatisation revenues (*privat*)	EBRD: Structural change indicators 2006	Privatisation revenues (cumulative, in per cent of GDP)	H4	+
	Internet penetration rate (*internet*)	EBRD: Structural change indicators 2006	Internet penetration rate (per 10,000 inhabitants)	H5	+
	Industrial concentration (*manuf*)	UNCTAD: Handbook of Statistics, 2007	Percentage of manufacturing in GDP	H5	+

3.2.2 Descriptive data analysis

Table 3.2 reports the descriptive statistics. As the group in this setup is the country, the within-group variation is the variation of the country variable over analysed period. The between-group variation is the variation of variables between countries for the considered period. It calls the attention that, apart from the internet variable, the *between variability* is higher than the *within variability*. This is an indication to exploit the existent heterogeneity across countries (Bellak *et al.*, 2007).

The negative minimum for stock within (i.e. *gdp*, *internet* and *privat* within) is not a mistake (Stata, 2006); the within is showing the variation of the variable stock (i.e. *gdp, internet* and *privat*) within country around the global mean 9508.

Table 3.2: Descriptive statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Stock	overall	9508.00	14046.34	137.00	61427.00	N = 120
	between		10431.74	1814.27	27444.00	n = 10
	within		9926.61	-15315.00	45306.38	T = 12
gdp	overall	40568.59	48243.05	4099.91	241591.80	N = 120
	between		47814.91	5983.50	164190.90	n = 10
	within		15889.03	-31636.49	117969.40	T = 12
ulc	overall	0.56	0.07	0.44	0.76	N = 119
	between		0.06	0.47	0.67	n = 10
	within		0.04	0.43	0.74	T-bar = 11.9
ace	overall	545.40	365.99	67.00	1822.27	N = 120
	between		335.55	226.72	1392.24	n = 10
	within		178.22	62.26	975.44	T = 12
privat	overall	9.02	9.04	0.00	35.10	N = 119
	between		7.36	2.08	25.65	n = 10
	within		5.69	-7.93	27.40	T-bar = 11.9
internet	overall	94.22	113.95	0.00	479.20	N = 120
	between		60.01	16.15	221.72	n = 10
	within		98.57	-124.50	436.86	T = 12
manuf	overall	21.82	4.02	13.24	30.18	N = 120
	between		3.52	16.66	27.24	n = 10
	within		2.22	17.23	31.37	T = 12
do	overall	0.86	0.27	0.36	1.49	N = 120
	between		0.22	0.46	1.14	n = 10
	within		0.17	0.13	1.31	T = 12

The correlation between the analysed location determinants is illustrated in Table 3.3. The correlation between internet penetration and degree of openness (0.5454) is elevated. But, it is expected that the most opened markets to have a higher internet penetration. Also, the countries with a higher GDP appear to have a larger private sector, a higher internet penetration rate and labour costs.

The unit labour cost is negatively correlated with the privatisation, agglomeration and the degree of openness proxies. This might be explained by the fact that an increase in these variables (privatisation, internet, degree of openness) determines an increase in productivity, hence a decrease of the unit labour costs. The annual compensation per

employee, indicator that does not capture a productivity indicator, is positive correlated with the same variables.

Table 3.3: Correlation matrix[14]

	gdp	ulc	privat	internet	do	ace	manuf
gdp	1						
ulc	0.0533	1					
privat	0.2484	-0.3363	1				
internet	0.0697	-0.2776	0.4052	1			
do	-0.3683	-0.3546	0.3983	0.5454	1		
ace	0.2071	0.2288	0.2051	0.5035	0.2785	1	
manuf	0.0527	0.4068	0.0203	-0.2023	-0.0417	0.3064	1

Industrial concentration is positively correlated with the unit labour costs, which signifies that manufacturing sector has higher labour costs or lower productivity.

The influence of possible multicollinearity is minimised through the conversion of the data into first differences (Harvey, 1980; Clegg, 1995).

3.3 Model specification

In order to test the influence of the above described variables upon FDI inflows, we use a panel data set and apply the random effects model.

There are several benefits of using panel data[15]. The most important is that the combination of time series with cross-sections can enhance the quality and quantity of data in ways that would be impossible using only one of these two dimensions (Gujarati, 2003: 638).

Another advantage is that panel data controls for individual heterogeneity (Baltagi, 1995). The variables that are studied differ from one country to another and vary with time; by using the panel it is possible to control the presence of individual variable effects that are common to a country across time but may vary across countries at any one-time period.

Panel data are more informative; provide more variability, less collinearity among variables, more degrees of freedom and more efficiency (Baltagi, 1995).

[14] The correlation matrix and the descriptive statistics were calculated using the absolute values of the variables.
[15] Panel data, also called longitudinal data or cross-sectional time series data, are data where multiple cases were observed at two or more time periods.

The data set constitutes an unbalanced panel that covers the period 1993-2004 for ten transition countries, totalising 118 observations (10 X 12 minus 2 missing observations).

Three different models will be tested but the main general, all inclusive, equation is presented below.

Equation 1

$Stock_{it} = \beta_0 + \beta_1(gdp)_{it} + \beta_2(lcost)_{it} + \beta_3(privat)_{it} + \beta_4(agglom)_{it} + \beta_5(do)_{it} + u_{it}$

where:

- $Stock_{it}$ is FDI stocks for host country i at time t
- gdp_{it} is the gross domestic product of each host country over time
- *lcost* represents the labour costs and it will be expressed in different models by:
  - ulc_{it} represents the unit labour cost for country i at time t
  - and ace_{it} represents the annual compensation per employee for country i at time t
- $privat_{it}$ represents the annual privatisation revenues for country i at time t
- *agglom* represents the agglomeration and it will be expressed in different models by:
  - $internet_{it}$ is the annual internet penetration rate per 10000 inhabitants for country i at time t
  - $manuf_{it}$ represents the percentage of manufacturing in GDP for country i at time t
- do_{it} is the degree of openness for country i at time t
- u_{it} is the error term and $u_{it} = \mu_i + \nu_{it,}$ where μ_i denotes the unobservable specific effect and ν_{it} denotes the remainder disturbances; μ_i is time invariant and it accounts for any individual specific effect that it is not included in the regression (Baltagi, 1995)

The first differences form of the variables is used. As a result we lose one year of observations, the total number of observations is reduced by 10 and the equation becomes as follows:

Equation 2

$$\Delta Stock_{it} = \beta_0 + \beta_1 (\Delta gdp)_{it} + \beta_2 (\Delta lcost)_{it} + \beta_3 (\Delta privat)_{it} + \beta_4 (\Delta agglom)_{it} + \beta_5 (\Delta do)_{it} + \Delta \nu_{it}$$

The estimation strategy is to test the OLS, fixed and random effects and choose the one that gives the more efficient estimate and that is the most relevant to the research.

The first step was to analyse the pooled ordinary least square results (POLS). There is a strong evidence to reject the null hypothesis (p –value is reported as 0.000 and $F_{(5, 102)critical} = 2.3 < F_{statistic} = 30.6$), hence the panel data is not *poolable*[16] and another regression model has to be considered. Further more, the POLS estimators ignore the panel structure of the data, treat observations as being serially uncorrelated for a given individual, with homoscedastic errors across countries and time periods (Johnston and DiNardo, 1997).

In conclusion, using the POLS estimation is not advisable.

Turning to the choice of deciding between fixed and random effects, the random effects model is preferred due to the following reasons. The random effects approach gives more insights as we are trying to see what determined the decision of investment between different locations. The higher *between variability* compared to the *within* one suggests that random effects should be exploited. When the number of units (in this case number of countries) is large and there are few time periods it is advisable to run the random effects and not the fixed model because of the loss of degrees of freedom.[17]

The random effects model is estimated by the GLS method. In the random effects model, the unobserved effect μ_i (see Equation 1) is uncorrelated with each explanatory variable ($cov(\mu_i, X) = 0$). The random effects model is sometimes described as a regression with a random constant term. In other words, it is assumed that the intercept is a random outcome variable that is a function of a mean value plus a random error (Baltagi, 1995).

[16] Slope coefficients are the same across groups or over time

[17] In the fixed effects model, for each observation it is created a dummy variable, and for each dummy a degree of freedom is lost.

3.4 Estimation results

Table 3.4 shows the estimation results. All coefficients carry the expected sign.

Before accepting the regression results the statistical significance shall be analysed. A *p* of 5 percent or less is the generally accepted point at which to reject the null hypothesis.

In Model 1, the p value indicates that the only variables of which variation determine a variation in the FDI stock are the gross domestic product, the privatisation and internet penetration, all being strongly significant. The unit labour cost and trade openness appear to be insignificant.

The predicted equation shows that the FDI increases with 0.24 when the gross domestic product goes up by one, with 251.15 when the privatisation goes up by one and augments by 27.92 when the internet penetration rate increases by one. In case the tested variables are zero the predicted FDI stock is equal to 194.41, but this result is insignificant therefore shall not be considered.

In Model 2, the unit labour cost is dropped and the annual compensation per employees is tested in order to verify if the correlation between labour costs and FDI changes when the productivity is not considered. The results show that both labour costs-related are insignificant.

Gdp, privatisation and internet penetration rate remain highly significant (at 1%), their coefficient values being very closed to obtained in the first model. The influence of trade openness is insignificant as in the first model.

In Model 3, compared to Model 1, the industrial concentration variable is introduced. The results are very similar to the ones registered in the previous models: *gdp*, *privat* and *internet* are highly significant (the elasticity values are almost similar with the ones obtained in the first models), while *do* and *ulc* appear to remain insignificant. Industrial concentration appears to be negatively correlated with FDI but it is insignificant, hence its sign cannot be taken into consideration.

There are R-square (R^2) values relating to *within-groups* and *between-groups*. The coefficient of determination is a summary measure that tells how well the sample regression line fits the data (Gujarati, 1995). The closer R-square is to 1, the more the model fits the data. In our case and considering all models, 88 to 92 percent of FDI stocks variation is explained by the differences of the chosen variables between

countries. The R-square *within-groups* is the explanatory power due to the right-hand side variables explaining the FDI stock variation for countries.

The overall R-square shows the proportion of variance in the dependent variable (FDI stocks) which can be predicted from the independent variables, considering both within and between-group variation. In the case of all models, the chosen variables explain 60 percent of the FDI stocks' variation.

Table 3.4: Random effects estimation results

	Model 1	Model 2	Model 3
gdp	0.24***	0.23***	0.24***
	(8.62)	*(8.51)*	*(8.53)*
ulc	1,762.45		1786.377
	(0.36)		*(0.36)*
privat	251.15***	260.09***	248.03***
	(2.73)	*(2.87)*	*(2.69)*
internet	27.93***	27.44***	28.01***
	(5.56)	*(5.55)*	*(5.56)*
do	777.17	1213.38	829.67
	(0.52)	*(0.82)*	*(0.55)*
ace		5.79	
		(1.41)	
manuf			-39.61
			(-0.4)
cons	194.41	-0.84	185.98
	(0.55)	*(-0.22)*	*(0.51)*
sigma_u	679.55	644.6	711.37
sigma_e	1,550.07	1515.15	1555.34
rho	0.16	0.15	0.17
N	108	109	108
R^2 Within	0.49	0.50	0.48
R^2 Between	0.92	0.88	0.9146
R^2 Overall	0.60	0.59	0.5947
Wald	$chi2_{(5)}$114.13***	$chi2_{5)}$120.49***	$chi2_{5)}$112.38***

Note:

- *** significant at 1% ($p < 0.01$)
- Z-values in paranthesis
- sigma_u = standard deviation of cross-section effects
- sigma_e = standard deviation of error term
- rho = fraction of variance due to u_i
- N = number of observations
- Wald test

The Breusch and Pagan Lagrange Multiplier test is applied to check the *random effects* (Baltagi, 2005). The null hypothesis is that cross-sectional variance components are zero. With the large chi-squared, we reject the null hypothesis in favour of the random group effect model ($chi2_{critical}$ (1) < $chi2_{statistic}$). The test was run for all models and the result was in favour of random effects model ($chi2_{critical\ 5}$ (1) = 3.84 < $chi2_{statistic}$ - values registered vary between 17.83 and 21.84)

The *multicollinearity* is checked by applying the variance inflation factors (VIF) test (STATA, 2007 and Bellak *et al*., 2006). VIF are a scaled version of the multiple correlation coefficient between variable j and the rest of the independent variables and is calculated as:

$VIF_j = 1/ (1 - R_j^2)$, where the R_j is the multiple correlation coefficient.

Table 3.5: Variance inflation factors test

Variable	VIF	1/VIF
do	1.14	0.874523
ulc	1.09	0.917856
manuf	1.03	0.967231
privat	1.03	0.970680
gdp	1.03	0.974208
internet	1.01	0.987837
Mean VIF	1.06	

The 1/VIF tells us what proportion of an independent variable's variance is independent of all the other x variables. A low proportion (e.g., .10) indicates potential trouble. The results described in Table 3.5 show that there are no problems due to multicollinearity among the independent variables as the minimum value of 1/VIF is 0.87.

The proxies *ulc* and *ace* were not used in the same regression because of supposed collinearity existent between them.

The *heteroscedasticity*[18] problem is solved because the estimation method used is the Generalised Least Squares (GLS) that transforms the variables such that to satisfy the standard least squares assumptions by correcting the heteroscedasticity (Gujarati, 1995).

[18] Heteroscedasticity implies that the random variables have different variances, and if the heteroscedasticityis not corrected, the estimators are no longer efficient and the best estimators (Gurajati, 1995).

The *robustness* is checked by dropping host countries. First were dropped Bulgaria and Romania as they are the ones that lag behind the other countries in receiving FDI. The values of the coefficients remain almost the same, the significance is unchanged, the only change is that *ulc* and *do* become highly insignificant. When dropping the Višegrad countries, the significance and the coefficients remain the same except for the trade openness that becomes significant at 10%. The result might have an explanation. As the countries that remained in the analysis are localised far away (compared to the Višegrad counterparts), trade relations gain importance.

In conclusion, the variables that appear to influence FDI stocks are gdp, privatisation and the internet penetration rate. The elasticities presented in Table 3.4 show that privatisation is one of the strongest motivation for FDI location in CEECs. A raise of the privatisation revenues in GDP with 1 percent increases the FDI stocks with more or less 250 million dollars. A similar elasticity was obtained by Carstensen and Toubal (2004); they found that a raise of 1 percent in the market share of private business leads on average to additional 242 million dollars of bilateral FDI to the host country.
An increase of 1 million dollars in GDP determines an increase of 0.24 million dollars in the FDI stock. The same positive correlation is found between the internet penetration rate and the dependent variable; if the number of internet hosts increases with 1 leads to an increase of 28 million dollars in FDI stocks. For the significant variables the value of the coefficients does not change significantly between the models. Unit labour costs, annual compensation per employee, degree of openness, export orientation and industrial concentration are found to be insignificant.

3.5 Discussion of results

Since 1989, the FDI trend to CEE was uneven and also varied among countries, some of them, such as Hungary, Czech Republic and Poland, have attracted more FDI than the others. This study attempts to explain what determined the foreign investors to place their business in these locations. The econometric model applied in order to test the hypotheses focused particularly on market-related factors, efficiency-related factors, transition-specific factors, trade openness and agglomeration. The comparison between

the expected and obtained results is presented below. Three of the hypothesis are confirmed, the results obtained being significant and with the expected sign (Table 3.6).

Table 3.6: Hyphotesis: expected and obtained signs

Hypothesis	Expected sign	Obtained sign
H1	+	+
H2	-	insignificant
H3	+	insignificant
H4	+	+
H5	+	+/insignificant

Among the analysed factors the most significant (in terms of coefficient value) turned out to be privatisation, followed by the agglomeration (expressed by internet penetration rate) and *GDP*. Labour costs, trade openness and industrial concentration appear not to influence significantly the decision of investing in CEE. In the following section, a possible explanation for the registered pattern is given.

Market

As anticipated, the market growth (GDP) positively influenced FDI. The positive relation is explained by market size, market growth and regional integration of the CEECs. Several characteristics make the CEE market attractive.

First, when the Iron Curtain fell, it led to the reintegration into the world economy of a relatively large market made up of 370 million inhabitants. It is natural that the sudden opening of the CEE market and its proximity to the EU attracted the interest of foreign investors. The investment location in CEE could be a strategic move for MNEs that look to maintain or increase their international strategic position. Some firms may see the entry to a new market as a good occasion to gain competitive advantages while other MNEs may have invested in order to avoid challenges from rivals or local incumbent competitors.

Secondly, before 1989, CEE's consumers had almost no access to consumer goods and brands accessible in other countries that had comparable levels of income (Meyer, 2001). The trade liberalisation set free a demand mainly for consumer durables available on Western markets. The advertising for such goods had entered CEE even before 1989, this, along with the effective promotion and brand-building that was sustained after, contributed to an increasing demand that needed to be satisfied.

Third, compared to other developing countries in Latin America and Asia and due to the fact that the trade barriers almost disappeared as a result of the Central European Free Trade Agreement, the dimension of the CEECs might be seen as insignificant; but the geographical and cultural proximity might have attracted a considerable number of European MNEs. Immediately after opening up, the FDI inflows were low, but as the liberalisation of the market advanced the FDI inflows also increased.

Fourth, as the applied model showed, the FDI volume and its allocation between the countries is a dependent of the market potential. A higher GDP indicates a higher potential demand and a larger market. Larger markets can accommodate more companies and can offer conditions for obtaining economies of scale. The growth stimulates investments as the demand is increasing. Poland, Czech Republic and Hungary had the largest GDP among the studied countries and they attracted the biggest volume of investments. Romania is the second biggest market after Poland in terms of population and territory but its "stop and go transition" slowed the growth and, despite its potential, attracted fewer investments.

Fifth, national markets are very important for the investments in the service sector (UNCTAD, 1998). As most of the services are not tradable, in order to be offered on a foreign market the companies must open subsidiaries in those locations. Before 1989, all services in CEECs were provided by state monopolies, after opening up a big demand appeared in the service sector. FDI in manufacturing sector was higher than in services until the privatisation of banks, telecommunication and utilities was opened to foreigners (UNCTAD, 2003).

The opening of the new market and its potential regional integration due to the proximity to the European Union might have attracted first the interest of foreign investors. The increasing demand, the potential of gaining comparative advantages and economies of scale, the opportunity for maintaining or enhancing the global position can be some of the features offered by CEE market that led MNEs to locate their investments in this region.

Another factor that contributed to the opening of CEE market within the analysed period is privatisation.

Privatisation

The model results show the expected positive correlation between FDI stocks and privatisation.

Privatisation in the CEECs was a complex process as, before 1989, almost everything was governed by the public sector. As the privatisation process in CEECs had considerable proportions, a close relationship was developed between FDI and privatisation, although it was not an equal one; "privatisation has undoubtedly dominated FDI inflows in most CEECs, FDI has not been the dominant form of privatisation". (Kalotay and Hunya, 2000: 39)

There are several reasons that explain why privatisation influenced positively inward FDI into CEECs.

One of the reasons consists on the fact that privatisation facilitated the transition to an open market and indicated the commitment to private ownership. These two features are important for the MNEs when choosing a location as they indicate an open business environment. Privatisation also promoted competition and improved the climate for more FDI, reassuring investors about the continuation of liberal policies in the future. This is a dimension of FDI – privatisation relation that refers to the market conditions created through privatisation. A simple analysis of the data supports the empirical finding, Hungary and Czech Republic started the privatisation process earlier and received greater investment amounts compared when compared to the other CEECs. In Poland the privatisation has been slow and accelerated only after 1997. In Romania and Bulgaria it was delayed for longer, only in the end of the 1990s it started to progress.

Another dimension of the FDI – privatisation relation is that privatisation was the form through which MNEs entered these markets. In CEE, for different sectors, privatisation was the dominant FDI form of entry (in the automotive industry in Czech Republic and Romania, and in telecommunications, transportation and bank industry in most CEECs) even if there were differences in motives and strategies (UNCTAD, 1998, 2000).

Privatisation-based foreign investment may lead to follow up investment by input and service suppliers of parent companies and to FDI by rival companies. Even if FDI accounted only to a certain extent for the increase of the private sector in CEECs because of the lack or limitation of host investors, when a state-owned asset of a certain size was privatised the majority of bidders were foreign (UNCTAD, 2003). Until 1995,

privatisation related FDI in Czech Republic accounted for almost all FDI. Hungary is believed to have almost exhausted its privatisation-related FDI potential, the decrease in FDI inflows registered in the end of 90s being justified by it (Hunya, 1998; Sass, 2004). Hungary, Estonia and, to a certain extent, Poland tried to attract privatisation related FDI; the other countries in CEE introduced methods that were favouring foreign firms only in the end of the 1990s. As per Kalotay and Hunya (2000) the governments of some countries under the financial strain of debt servicing and budget deficits were pressed to increase revenues from privatisations.

MNEs had different motivation for engaging in privatisation-related FDI in CEECs, some looked for the first-mover advantage offered by the privatisation programme, others because they saw merits in their market positions (Antalóczy, 1997 in Kalotay and Hunya, 2000) or because they wished to increase sales by becoming a local firm. In terms of MNEs strategies, most studies underlined the relative market-seeking nature of privatisation-related FDI in CEECs. (Kalotay and Hunya, 2000)

The countries (Hungary, Czech Republic and Poland) that initiated early the privatisation process and encouraged foreign participation received bigger amounts of FDI. As discussed above this evolution can be explained by the fact that big privatisation programs in CEECs, either with foreign participation or not, helped in creating a better climate for FDI; also, foreign acquisitions were more numerous in the locations were the privatisation-related FDI was encouraged.

Agglomeration

In order to express agglomeration, two proxies were used: internet penetration rate and industrial concentration. The results obtained showed that internet penetration positively influences inward FDI while the industrial concentration appears to be insignificant.

Extant literature showed that factors such as increasing returns, market failure and spatial competition may favour the appearance of industrial agglomerations (Fujita and Thisse, 1996). Agglomeration economies are not only industry-specific (economies of localisation or specialisation) but urban-specific (economies of urbanisation) also (Barrios *et al.*, 2006). The results of the present research showed that economies of urbanisation positively influenced FDI, but economies of localisation are not so relevant for MNEs location decisions.

The positive influence of internet usage upon FDI can have various explanations.

First, a high penetration rate suggests the existence of an urban agglomeration (more inhabitants use the internet, more access points are needed and an infrastructure to invest in). It signifies that more economic activities are taking place in that location where an infrastructure already exists, a fact that might influence investors to place their subsidiaries there.

Secondly, it is supposed that the internet users have certain skills and that the climate is modernised enough to have this type of service. Internet usage can be seen as a skill and it is already considered a literacy indicator (Economist Intelligence Unit and IBM, 2007). CEECs have a sufficiently skilled labour work to absorb the new technology.

Third, it indirectly improves productivity, brings knowledge, lowers the international communication and search costs (making easier the entrance into a new market) and increases transparency. Business to Business, Business to Consumer and Business to Government are good examples of these advantages. It might help allowing large suppliers to avoid retailers and contact the customers directly, implementing software programs and creating direct connections between subsidiaries and headquarters at lower costs.

All the above described circumstances create a climate that helps attracting FDI.

Estonia and Slovenia are in the top of the world ranking in what concerns the broadband usage. (Economist Intelligence Unit, 2007) Czech Republic and Hungary have also a high internet penetration rate. Romania and Bulgaria have the less developed infrastructure and are the countries that received the smallest magnitude of investments. The results show that investors chose to locate their subsidiaries in countries that have a more advance infrastructure.

The other proxy used for expressing industry-specific agglomeration is industrial concentration. The estimation suggested that there is no correlation between industrial concentration and FDI as the former appears to be statistically insignificant. Hence, the industrial tradition that is characteristic to some of the CEECs and the supposed advantages offered by it (such as skilled labour force, existing linkages) do not influence the investors when choosing the location in CEE. This can be justified by the fact that there are no important industrial concentrations in CEE.

Another reason is the fact that the weight of manufacturing in GDP is decreasing and services start gaining more importance. Even if CEECs have a tradition in industry, an industrial restructuring took place because of the low productivity, old equipments and bad management; the output and employment suffered in the first stage (UNCTAD, 2003). Part of the restructuring of the manufacturing enterprises was made with the help of foreign investments but it cannot be stated that in general it was one of the strong motivations to invest in CEECs. On average, within the studied years, more than 60% of the inward FDI in CEE was attracted by financial, wholesale, telecommunication and transport activities, tourism, social and personal services. The countries that received a higher percentage of FDI in manufacturing are Romania and Slovakia (OECD, 2005; National Banks, 2006)

Also, the level of industrial concentration appears to be quite homogeneous among CEE, a fact that can also explain its insignificance when choosing the location.

The distinction between urbanisation and localisation economies was mentioned also by various authors. Henderson (1988) showed that urbanisation economies and localisation economies have a different influence upon industries location according to the type of industry. Traditional industries tend more to locate in regions where economies of localisation dominate, while the business services and modern industries tend to locate in urbanisation economies (Audretsch and Feldman, 1996).

Labour costs

Labour costs appear to be insignificant when choosing a FDI location in CEE. Both proxies used (including/excluding a productivity measure) showed that labour costs do not influence the investors' decision. Although the hypothesis and most of the reviewed empirical literature state the opposite, the finding is not surprising and several explanations can justify it.

CEE might have attracted investments due to its cheap labour but once the decision was taken to locate it there, finding the cheapest possible labour within a region characterised already by low wage might not be so important. Hungary, Czech Republic, Poland and Slovenia have the highest annual compensation per employee but they received the biggest amounts of investments, while Romania and Bulgaria, which registered cheaper labour costs, received less FDI. In the case of CEE a higher labour

cost might embody a better qualified personnel and a more stable labour policy. For example the labour legislation in Romania and Bulgaria was very controversial and might have created the impression of a higher risk to investors (EIRO, 2005).

In terms of unit labour cost (that includes a productivity measure) Romania and Bulgaria have the highest labour costs being followed by Slovenia, Lithuania, Poland and Hungary. This finding reinforces the idea that the high annual compensation registered by the most advanced countries in CEEC might signify that the personnel is relatively better skilled and more productive. The existent differences in labour cost terms between the studied countries are not so significant in order to have a strong influence upon the location choice. CEE is a location that registered low labour costs and as the countries are not very heterogeneous from this point of view, the choice of the host country, as the model results suggested, is made taking in consideration other determinants.

Another explanation for the statistical insignificance obtained might consist on the fact that low labour costs were an incentive for OPT and not necessarily for direct investments (Lemoine, 1998). Especially in the first years of its transition, CEE was an important location for OPT, particularly in manufacturing sectors such as textile and footwear (the share of OPT in CEE's exports represented 20% of total exports in the beginning of the 1990) (Lemoine, 1998).

The influence of wage costs on FDI decisions varies among industries, depending on their factor combinations (labour or capital intensive) and investment motives (domestic or export market oriented) (Agarwal, 1997). In CEECs, in a first phase of transition, the traditional sectors in manufacturing might have offered low labour costs advantages but as these sectors decrease, these advantages do not exist to such extent as they used to.

The time span used includes also the last years of transition when the wage differential was not so well-defined anymore. CEE still has low labour costs, compared to most of the countries in the Western Europe, but the difference is not as relevant as in the beginning of the transition period and has higher costs than some locations in Asia.

Also, the wage costs are not as central in many investments as they once were, especially for companies making high technology products. Contiguity to major centres of production and research is now equally if not more important (Barrel and Pain, 1999).

Trade openness

The openness to international trade appears not to affect the FDI decision in the case of CEEC, as the degree of openness resulted to be statistically insignificant. Several reasons may justify the obtained result.

The analysed countries are quite homogeneous in what regards their openness to trade, a fact that could have determined that investors were not influenced in their choice by this factor.

The countries that are more liberal in their trade approach tend to export more and this might attract foreign investors, especially ones which are export-driven (Bevan and Estrin, 2000). Resmini (1999) suggested that the export-driven investors were attracted mainly by low labour costs (which give the possibility of reducing the costs) and by the degree openness. The results of the present thesis suggest that low labour costs were not the main attraction for the investors; hence, the MNEs were not necessarily and mainly export-driven being interested in lowering the production costs and afterwards exporting.

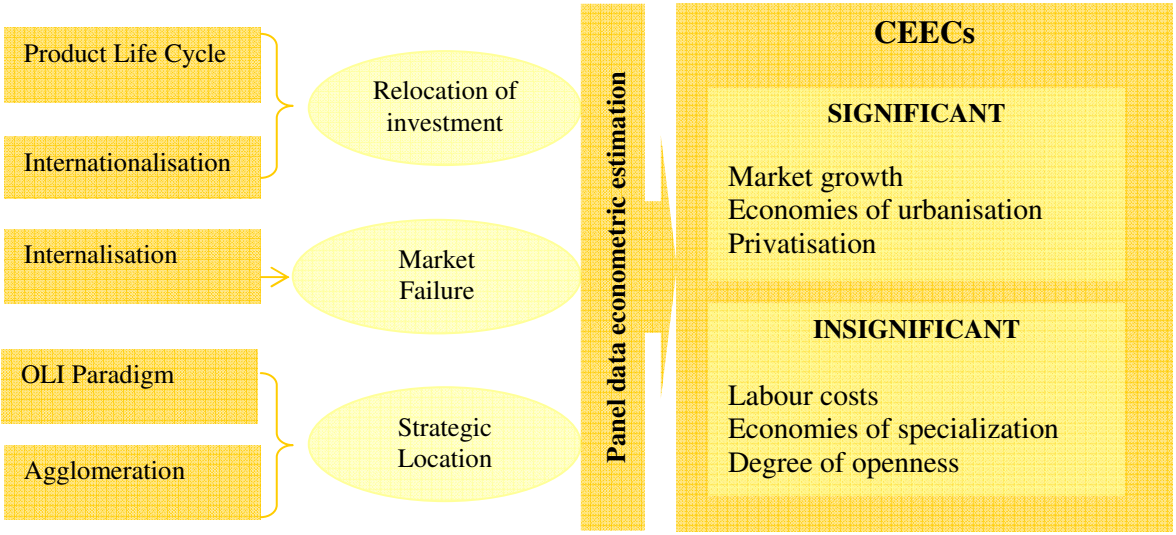
Maybe an analysis taken in the bilateral inflows frame, where the home countries are specified, would give a different result.

4 Conclusions

The present chapter is an attempt to assess the achievements of the objectives of the dissertation. The contributions to economic analysis as well as the limitations are pointed out and some avenues for future research are presented.

The research sought to investigate which are the main determinants that influenced the FDI location in CEECs.

The below figure can be considered as a synopsis of the dissertation. Three main sections led to the final conclusions. The theoretical background considered aimed to better define the research question and to lead to the main points that should be considered when analysing the empirical literature and formulating the hypothesis. The empirical literature reviewed the main FDI determinants, helped in better formulating the research hypotheses and further steps in the analysis. The empirical investigation tested the research hypotheses previously formulated and sought to give a possible explanation for the obtained empirical results.



The theoretical background explains why MNE engage in overseas investments. The gradual relocation of investments might be explained by product life cycle and internationalisation theory, the FDI location due to market failure is explained by internalisation theory, relative location advantages and strategic location by the OLI

paradigm and agglomeration theory. Based on this and on the empirical literature, the main determinants considered for CEECs were selected and tested.
The results are consistent with the FDI trend in the region and with the studied literature.

The empirical results proved that, at a country level, the most significant factors that influenced the investment decision in the region were:

1. M*arket growth,* confirming the fact that one of the most important FDI motivations for MNEs in CEEC was the opportunity of finding a new market regardless of the activity sector.
2. *Privatisation*. The existent literature recognises the importance of the privatisation process in CEEC but our results show that this is the most relevant factor when it comes to attracting investments. This finding is in accordance with UNCTAD's (2003) statement that investment related to privatisation has been the dominant form of inflows into CEEC, especially in the 1990's. This conclusion should be emphasized because, once the privatisation process is completed, the FDI competitiveness of the countries is diminished and new FDI incentives should be offered. As an example, in 2000, in Hungary and in 2003, in Czech Republic, the FDI flows decreased significantly mainly due to the end of privatisation (Sass, 2004; UNCTAD, 2004).
3. Agglomeration (due to *economies of urbanisation*). This determinant has two dimensions: it expresses the ICT infrastructure level and it can be seen also as a "market facilitating instrument" (Dunning, 2002:10). The countries that were better endowed with an ICT infrastructure attracted more investments.

Surprisingly, at first sight, labour costs, trade openness and industrial concentration are not influencing the investment decision in the CEEC. This supports one of the recent statements in the literature that labour costs are not in many investments as central as they once were. Among the insignificant variables the trade openness presents the most difficult problem of interpretation.
For investors in the CEE market, the most important motivations appear to be market-seeking (market growth) and asset-seeking (infrastructure). The privatisation is a one-

off opportunity and difficult to include in any FDI type. Resource-seeking (labour costs) and efficiency-seeking (trade openness) appear not to be relevant.
Briefly, one of the main incentives of investors in CEECs was the domestic market-seeking which assumed, at least initially, mainly the form of acquisition of privatised firms. MNEs preferred to locate their investments in agglomeration areas which did not necessarily take the form of agglomerations within the same industry (as the industrial concentration resulted to be an insignificant determinant) but nevertheless qualify as regional agglomerations.

4.1 Main contributions

The dissertation contributes to deepen the knowledge in what regards the FDI location determinants in CEE. In order to assess FDI motivations properly the theoretical approaches are related to the research question providing a better comprehension of the investments motivation.

Another contribution is the thorough review of the empirical literature on FDI determinants. More than sixty state-of-art papers dealing with FDI location determinants were reviewed in order to provide a comprehensive survey for the most important FDI location determinants in CEE. The empirical studies illustrate a wide diversity of results with regard to size, sign and significance of analysed determinants coefficients. Despite the diversity and the fact that strict comparisons between different empirical investigations cannot be done (due to different methodologies, data sources, etc.) several conclusions could be drawn. The main findings of such studies were that the motivations to invest in CEE are mainly market-related and cost-related, agglomerations and trade openness are also important, especially in the sectorial analysis.
These results suggested that the FDI in CEE is mainly horizontal as it is more market oriented.

In terms of methodology, in order to test the hypotheses regarding the significance of the main location determinants, a panel data econometric estimation was conducted by applying a random effects model to the first differences of the variables. Panel data is

one of the best methodologies suited to answer the research question, given the fact that the combination of time series with cross sections can enhance the quality and quantity of data and individual heterogeneity can be controlled for.

Compared to the extant empirical literature, the present dissertation considered one of the longest time spans in a one-way panel data model run for CEE. This might imply a better accuracy of the results obtained.

The time span (1993-2004) included the first years of transition and, for most of the countries, the later stage of transition. For this period, the main location determinants in the analysed CEECs were mostly market-related. Despite the fact that the literature is conclusive in what concerns the negative effect of labour costs, the cost-related factors appear to be insignificant, suggesting that CEECs do not have a significant comparative advantage in labour costs, and that many cost-oriented investors were discouraged by low productivity.

The dissertation enhances the knowledge regarding the FDI trends in CEEC, helping to better understand the competitiveness of the countries located in this area and to draw policy implications of such findings.

4.2 Limitations of the study

One of the limitations is the exclusion from the analysis of some location factors (due to lack of meaningful data) that, given the specificity of CEE, could affect the FDI location decision. Such factors are:

- *country risk* variables that could express the legal, political and economic environment. For CEE this is an important aspect and, given the different stages that they reached within the transition period to a market economy, the country competitiveness in attracting FDI depends upon it. This omission is due to lack of meaningful data;
- special *investment incentive* indicators;
- a better *agglomeration* indicator. A lagged dependent variable was initially considered to express agglomeration. In this case a dynamic panel data

estimation should have been carried out by applying the GMM estimator of Arellano and Bond (Arellano and Bond, 1991). However, the number of observations is too small in order to use such a method, thus resulting in it being discarded.

In the analysis it couldn't be used the real unit labour cost but only the nominal unit labour because of the missing data (Purchasing Power Parity). Real unit labour costs focus more directly on the profitability pressures associated with the employment of labour than nominal unit labour costs do, hence it is preferable to be used in the analysis (Bellak *et al.*, 2007).

These are some limitations to the study which are, at the same time, an open door for future research, as explained subsequently.

4.3 Future research

All the above mentioned limitations can be considered in the future for an improved analysis.
Regarding the level of analysis and data source improvements could be made.
The findings of the present research are obtained for a country-level regardless of the sector of activity. An interesting approach would be to run the analysis at a sectoral, industry-level in order to detect the comparative advantages of these. Such findings could help in detecting in more detail the location advantages.
The data source of the present research was obtained from various international organisations. A valuable work would consist in creating a database based on a survey made in collaboration with the main investors in these locations.

The present study considers almost the entire period of transition. A viable future analysis would be to divide the transition period and to compare the FDI determinants in the first and last years of transition.

The relation of FDI with trade in CEE is often inconclusive, mainly due to the supposed causality between the two variables. A more profound analysis of the relationship

should be undertaken. The implications of the OPT in CEE and why it was preferred to FDI, is another interesting research theme.

In the present analysis, a recently considered indicator, internet penetration rate, is used. There is an incipient literature that analyses the influences of the potential use of ICT, especially the internet, upon FDI location. Given the increased importance of internet in business environment a more profound analysis of the relationship between internet and FDI should be carried on.

Over the last two decades important contributions related to FDI location determinants were brought about, but as the world economic scenario is continuously changing and at a faster rate than it used to, the relation between FDI and potential location determinants should remain an important research theme.

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